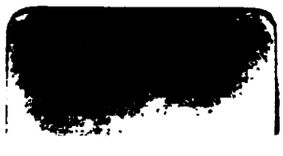
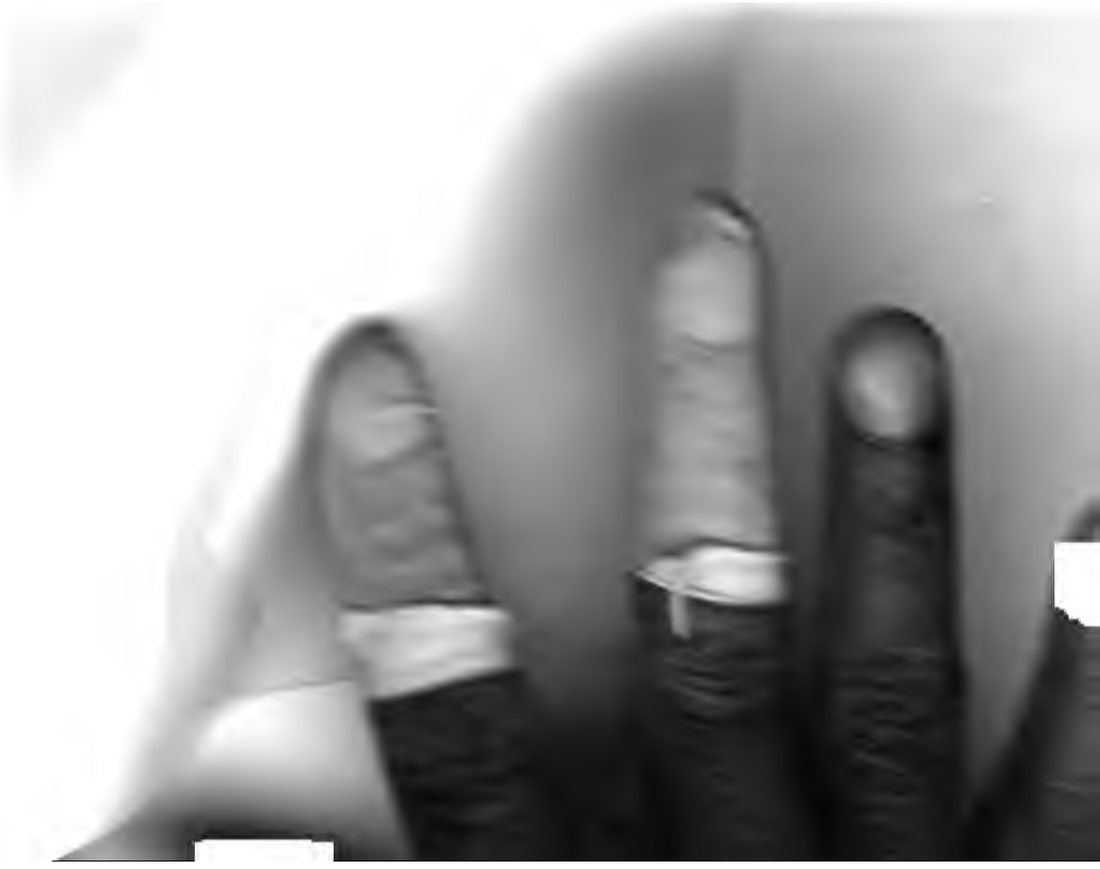




American Druggist

AN

ILLUSTRATED MONTHLY JOURNAL

OF

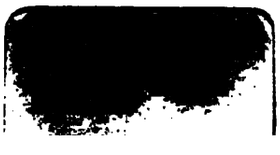
Pharmacy, Chemistry and Materia Medica

FRED'K A. CASTLE, M.D.,
PHYSICIAN TO THE PRESBYTERIAN HOSPITAL
EDITOR

CHARLES RICE, PH.D.,
CHEMIST OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTIONS
ASSOCIATE EDITOR

VOL. XIII

WILLIAM WOOD & COMPANY
PUBLISHERS
56 & 58 LAFAYETTE PLACE, NEW YORK
1884



sensitive skin (*i. e.*, all persons susceptible to carbolic acid); in children (in combination); in wounds in deep cavities where secretions easily decompose; after resections; removal of tumors, etc.; and in wounds attacked by erysipelas. Naphthalin is also most useful in every department of hospital hygiene.—*Phila. Med. Times.*

Black Surgical Silk

Is furnished by Snowden, of Philadelphia, in fourteen sizes. The finest sizes are adapted to plastic surgery and delicate operations, the medium sizes to ordinary operations, and the strongest when great strength of ligature is required. In operations like circumcision, where considerable swelling is apt to conceal the sutures, the black silk is more readily seen than the white, and may be removed with less disturbance of the flaps.

Successful removal of sutures is often a matter of great importance, as in ophthalmic and plastic operations where the slightest injury to the newly-united edges is to be avoided; and it is in these cases that the black silk is especially useful. Moreover, this silk, dyed with iron, is less irritating to the flesh than white lead-dyed silk, and sutures will remain a long time without causing inflammatory action.—Dr. G. D. Hersey, of Rhode Island.

Sesame Oil: Its Suitability for Pharmaceutical Uses.*

Thomas Maben finds that sesame oil is very suitable for preparing the plasters of the British Pharmacopœia. Lead plaster so made is more adhesive than that prepared from olive oil, and does not become so friable, but a larger proportion of lead oxide is required. Adhesive plaster requires less resin, and is consequently less irritating to inflamed surfaces, and belladonna and other plasters, which are frequently kept ready spread, do not crack so readily when lead plaster made from sesame oil is the basis.

With the exception of ointment of nitrate of mercury, the ointments of the British Pharmacopœia can also be very successfully prepared by substituting sesame oil for olive and almond oils. In the case of the exception referred to, a peculiar principle, common to most seed oils, has a reducing action on the mercurial salt, with the result that the ointment becomes discolored and unfit for use in the course of a few weeks.

In writing upon the same subject, Michael Conroy, F.C.S., said the oil he used was from a reliable source. It was of a pale yellowish color, of sp. gr. 0.921, possessing a bland, sweet, nut-like taste, with neutral reaction. Concentrated sulphuric acid converted it into a deep, brownish-red jelly. The addition of two per cent of a cooled mixture of equal parts of strong nitric and sulphuric acids, caused it to acquire a deep-green color, rapidly changing into deep-brown; and to other well-known tests it answered equally satisfactorily.

From experiments which were detailed, it was very evident that this oil could not replace olive oil for chief pharmaceutical uses, since plaster made with it would not set sufficiently to be portable, either in the form of rolls or when spread for use; neither can it be used satisfactorily for lime liniment, because of its tendency to separate. Liniment of ammonia made with it is a little thinner than usual. These defects are undoubtedly due to the large amount of olein contained in this oil, and consequently lesser proportion of the more solid glycerides, and it is very singular that these defects are what chiefly recommended the oil to the authors of the "Pharmacographia," namely, the "larger proportion of olein and consequent lesser tendency to solidify." Where, however, no chemical combination takes place and where simply a bland sweet oil, possessing good keeping properties, is required as an ointment basis, perhaps no better could be chosen, and on this account the author considers it much more suitable as a substitute for almond oil in the preparation of ointments. Samples of the principal ointments contained in the British Pharmacopœia had been prepared, which were quite equal in every respect to those prepared with almond oil.—*Chem. & Drug.*

* Abstract of two papers read at the late Brit. Pharm. Conf.

Aconitine for Internal Administration.*

Aconite seems to be more used in medicine in America than in England. Dr. Squibb has recommended the use of a fluid extract of the root, which itself is very variable in quality. After the numerous scientific researches on the subject, this seems a distinct retrogression.

Aconitum Napellus is the species almost always ordered. Its alkaloid can be prepared in a crystallized state, and is easily identified. Dr. Fraser, of Edinburgh, has investigated its physiological action, which differs from that of the alkaloid of *A. ferox*. The latter root, whenever it can be obtained, is, however, used for the manufacture of the alkaloid. The root of *A. paniculatum* sometimes occurs, introducing another alkaloid of different properties.

Aconitine, before it can be safely used for internal exhibition, must be separated in a crystalline condition. This is not difficult, but it is wasteful. Ordinary skill only is required, helped by extraordinary patience. The nitrite is the best of its salts to crystallize, and can be produced in quantity averaging, perhaps, one-third of the total yield of alkaloid. From the nitrate, the pure alkaloid, or any of its salts, can be made without difficulty. [See New Rem., 1882, 265.]

It fortunately happens that the nitrate of fer-aconitine is crystallizable only from a strongly acid solution. It is, therefore, necessarily excluded from the crop of crystals obtained from a neutral, or nearly neutral, liquid. There remains the possible admixture of picr-aconitine, the nitrate of which crystallizes in forms so like those of nap-aconitine that by an ordinary observer they would not be distinguishable. The bitterness is its most patent distinction. The poisonous aconitines are not bitter. Moreover, its comparative solubility in dilute ammonia is characteristic, so that a nitrate of aconitine that yielded, on precipitation with dilute ammonia, a proportion of alkaloid much less than that due to its centesimal composition would deservedly be suspected. However, the best test of all would be the physiological test applied to each batch of alkaloid by competent experimenters, and a series of preparations so guaranteed, produced by a house of known reputation, would soon be accepted by the medical profession as a most useful addition to the list of heroic remedies.—*Chem. and Drug.*

[The above paper furnishes sufficient grounds for a belief that a fluid extract will still continue to be employed when a safe and reliable preparation of aconite is desired.—Ed. A. D.]

Chancellor Carroll, of South Carolina, died recently from erysipelas, following a spider's bite.

* Abstract of a paper read by T. B. Groves at the late Brit. Pharm. Conf.

Spirit of Nitrous Ether.*

After mentioning some points in the history of the preparation, the author proceeded to discuss the pharmacopœial process devised by Professor Redwood. He believed that the moderate action and constant temperature was due, not to the formation of nitrous acid, but rather to the action of the sulphuric acid upon nitrate of copper, or to the increase of the boiling point by the admixture of sulphuric acid.

Nitrate of copper was first prepared with excess of acid, and then distilled with sulphuric acid and rectified spirit.

The product was four fl. oz. more than the British Pharmacopœia directs, and three to four per cent of ethereal fluid separated on application of the Pharmacopœia test.

Another experiment was tried, with a smaller quantity of nitric acid, equal to the B. P. quantity. The product separated nothing with solutions of chloride of calcium. No. 1 had only one advantage over the Pharmacopœia, viz., the greater regularity of its distillation, and required the use of much more copper, and twice as much nitric acid. Some base was sought which would be cheap, constant in composition, easily decomposed at the required temperature by the sulphuric acid, and exist either in the state of nitrate in commerce, or in that of some compound which could be converted into a nitrate without loss of nitric acid.

Calcium was tried, calcium carbonate being used in place of copper in the pharmacopœial process.

The distillation proceeded with great regularity from the beginning to the end; the product was 86½ fl. oz. of a liquid of sp. gr. 0.8453 at 60½° F., and separated 3 to 4 per cent by the chloride of calcium test.

The first 82½ fl. oz. were tested, and found only to separate about 1 per cent, but the remaining 4 fl. oz. of product raised it to the strength named.

Another lot was tried with a third less spirit added to the sulphuric acid. The product was 87½ fl. oz., sp. gr. 0.8463, and 3 to 4 per cent of ethereal fluid separated. The distillation occupied less than an hour.

To test the idea that the sulphuric acid might so raise the boiling-point of the mixture of nitric acid and spirit as to reach the temperature necessary for the formation of the nitrate of ethyl, another experiment was tried with pharmacopœial proportions, omitting the copper. The product, perhaps through some neglect, was not satisfactory.

Samples made by the B. P. process, and by the same with the substitution of chalk for copper, have been kept seven months without deterioration in bottles, *not full*, exposed to bright light in a warm room, and, moreover, have had a number of small samples taken from them, as would be the case in dispensing. The advantages of the process suggested are: (1) The product is 5 per cent greater; (2) the cost is less; (3) the process is more analogous to the old one; (4) occupies much less time; (5) the distillation is much more regular; (6) the proportion to be distilled is one-third less. Advantages 4, 5, and 6 recommend it as a manufacturing process.

One thing at least seems perfectly clear, viz., that the success of the B. P. process is not due to the formation of nitrous acid, but to the increased boiling-point resulting from the presence of the sulphuric acid, which is gradually eliminated, as the distillation proceeds, by its action upon the coper, or upon nitrate of copper, and thus maintains a proper equilibrium.—*Chem. and Drug.*

* Abstract of a paper read by Alfred Clay Abraham, F.C.S., at the late Brit. Pharm. Conf.

Collodion Combinations.*

THE advantages of combinations of collodion are that, unlike ointments, they remain fixed for some time to the part applied, and are cleanly. It remains, however, to be proved whether the remedial effects of the several substances in combination with it will be obtained. Collodion must retard the action more or less of all of them, but at the same time it is reasonable to expect some of those under consideration may be found useful. The following have been found suitable:

Wood-tar collodion. — One drachm by weight of wood-tar with 4 of collodion.

Coal-tar collodion.—The same proportions of an alcoholic extract of coal-tar of the consistence of syrup with collodion. (The addition of 30 grains of iodine to the fluid ounce of ether of these preparations does not affect its consistence or adhesive properties.)

Oil of cade, 1 by weight to 5 of collodion.

Gurjun oil, 1 by weight to 3 or 4 parts of collodion.

Oleic acid and Peruvian balsam, each in the proportion of 1 by weight to 4 of collodion.

Flexible collodions. — Glacial acetic acid, 1 part by weight, flexible collodion, 4 parts.

Carbolic acid, in crystals, 1 part to 4 of flexible collodion.

Creosote, 1 part by weight to 7.

Essential oil of mustard, 1 part by weight to 7 of flexible collodion.

Belladonna collodion: Macerate 60 grains of the alcoholic extract in a fluid ounce of flexible collodion for 24 hours, and decant the clear liquid.

Aconitia, atropia, and hyoscyamia dissolve very readily in collodion.

Veratria, 8 grains dissolved in 1 fluid drachm of oleic acid mixes with 7 fluid drachms of flexible collodion.

Morphia, 5 or 10 grains in a fluid drachm of the acid with 7 drachms of flexible collodion.

Ammoniated mercury, iodide of lead, and precipitated sulphur, each of them should be mixed with flexible collodion in the proportion of 1 drachm to 7 and 4 or 5 drops of castor oil.

Oleate of mercury should be mixed with collodion in the proportion of 1 to 4. To prepare the oleate, take 1,320 grains of oleic acid, dilute with three volumes of ether, add 420 grains of dry binoxide of mercury, and shake the mixture occasionally for 4 days, until the orange color of the binoxide disappears, allowing the creamy compound to evaporate without the application of heat. The dilution of the oleic acid with ether prevents caking; the oleate of mercury so obtained is of a yellowish-white color, of the consistence of vaseline.

Oleate of zinc will mix in the proportion of 1 part to 4 of collodion.

Iodide of cadmium dissolves in flexible collodion, 1 drachm mixed with 7 fluid drachms of the collodion and 4 drops of castor oil.

When iodide of sulphur is treated with collodion the iodine dissolves out and the sulphur subsides.—*Chem. and Drug.*

FUNNEL-SUPPORT.

A. HUCKLENBROICH, of Kempen on the Rhine, describes in the *Pharm. Zeitung* of August 1st, a novel funnel-support, which presents several useful features.

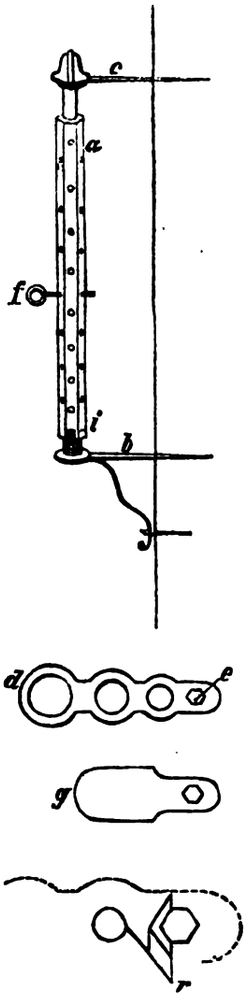
A wooden hexagonal rod, *a*, about 3 *cm.* (1¼ in.) in diameter and 60 *cm.* (24 in.) long, perforated with numerous holes, and rounded off, below and above, for a distance of about 5 *cm.* (2 in.), is held in place by two iron supports, *b* and *c*, which are fastened to the wall; the lower end is hollow, and rests upon a pin, *i*, projecting from the lower arm.

Three funnel-supports, *d*, about 35 *cm.* (14 in.) long are provided, each with three different sized, round holes, conically bored so that the funnels will firmly sit therein, and with a hexagonal hole at the end, which closely fits the wooden rod, and by means of which they may be raised or lowered in a perpendicular direction without swerving to or fro; being held in place by a pin passed through the holes in the rod.

In order to preserve the horizontal position of the funnel-supports, each of them is provided, in front of the hexagonal hole at the under surface, with a shoulder, *r*.

In addition, one or more small unperforated supports may be affixed to the rod, to hold small flasks for receiving the filtrate from any one of the funnels.

When the supports are not in use, they are pushed up and kept in place by the pin.



Funnel Support.

Tincture of Nux Vomica.*

TWELVE specimens of the tincture of nux vomica of the British Pharmacopœia† were obtained from the principal manufacturers in London, and they were subjected to analysis. When tincture of nux vomica is evaporated, a resinous mass remains, which will be found to be only partially dissolved by chloroform, the greater portion remaining insoluble. It is practically impossible to wholly extract the alkaloid from the mass by the use of chloroform alone. There are two ways in which the alkaloid may be isolated from it. (1). By treatment with ammonia water, which dissolves the resinous mass and allows the alkaloid to be easily extracted by one or two agitations with chloroform. The chloroformic solution is extracted by shaking with dilute sulphuric acid and the alkaloid extracted from this liquid, after the addition of excess of ammonia water, by chloroform. The chloroform is then evaporated and the residue dried at 100° C. (2). By treatment with dilute sulphuric acid, which entirely dissolves the mass, and after the addition of ammonia water the alkaloid can be extracted in the pure state by chloroform. These processes both yield finally the same result, as will be seen from the following figures, which represent the percentage of alkaloid found in a specimen of tincture analyzed in both the above ways:—

Process 1.....0.302 per cent.
Process 2.....0.304 "

A table of the results shows that the specific gravity of the tincture varied from 0.8552 to 0.8377, the percentage of total alkaloid from 0.360 to 0.124, but not always in harmony with the specific gravity. In the sample with specific gravity 0.8552 the percentage of total alkaloid was 0.1811; where the percentage of alkaloid was 0.360 the specific gravity 0.8450. Two other columns show the percentages of strychnine and brucine in the tincture, which by no means correspond to specific gravity or total alkaloidal strength.

It will be seen from these results that the tinctures of nux vomica now in commerce vary to a very considerable extent in alkaloid strength, the strongest tincture containing nearly three times as much total alkaloid as the weakest. It will be at once conceded that the important feature in a typical tincture of nux vomica is or should be uniformity in alkaloidal strength; the other constituents, though doubtless valuable, are of secondary importance. It directly follows (1) that a standard of uniformity should be officially recognized (2) that the pharmacist should be able to prepare and guarantee the tincture of standard strength. This accomplished, the pharmacist, having determined the amount of total alkaloid contained in the seeds from which the tincture is to be prepared, employs a sufficient quantity to produce by a process of complete exhaustion, the standard tincture.—*Chem. and Drug.*

The Poison of Serpents.

(*a.*) *Proteroglyphs.*—1. Naja tripudians (spectacle snake, cobra di capello), a native of Bengal.

2. Elaps corallinus (coral snake), an inhabitant of Asia, Africa and Australia; its mouth is so small that it can with difficulty only strike with its fangs.

(*b.*) *Solenoglyphs.* — 1. Crotalus horridus (rattlesnake), this species being, with the others, C. durissus and C. adamanteus, natives of America. Its bite is the most formidable of all, but it attacks only when irritated, and gives always a previous warning with its rattles.

2. Lachesis muta, the largest of all the poisonous serpents, belongs only to South America, especially Brazil; this is undoubtedly the one used by Hering, although he confounded it nominally with the Trigonocephalus.

3. Bothrops lanceolatus (lance snake, yellow viper) of Martinique, the only dangerous ophidian of that place. Its poison, without doubt, has been sometimes sold under the name of lachesis, and has been studied by Rufz and Ch. Ozanam.

(*c.*) *Vipers.*—Of which there are three species only in Europe.

The venom of the cobra is grayish; that of the lance transparent; of the crotalus, very clear, pale or yellowish emerald, of gummy consistence, without odor or taste.

* Abstract of a paper read by J. B. Barnes, pharm. chem., at the late Brit. Pharm. Conf.

* Abstract of a paper read by Windham R. Dunstan and F. W. Short, at the late Brit. Pharm. Conf.

† Nux Vomica, 2 av. oz.; alcohol (sp. gr. 0.838) to make 1 pint by percolation and expression.

The venom of the viper has the same appearance and color as the oil of sweet almonds. Dried, the poisonous liquid forms varnish-like scales. The rattlesnake, of large size, has at least 75 centigr. of poisonous fluid in each fang and loses three to four drops at each bite. A large viper possesses nearly 15 centigrammes.—*N. Y. Med. Times.*

Composition of Easton's Syrup.*

EASTON'S Syrup professes to contain "about 1 grain of phosphate of iron, 1 grain of phosphate quinia, and ½ grain of phosphate of strychnia in each fluid drachm."

This statement is made by Mr. Squire,† and a formula given for making the syrup, which is called "Dr. Easton's formula."

[The following is the formula: Sulphate of Iron, 2½ oz. (avoid.); Phosphate of Sodium, 3 oz.; Sulphate of Quinine, 1½ oz. and 48 grs.; Strychnine, 24 grs.; Diluted Phosphoric Acid (sp. gr. 1.080), 56 fl. oz. (imperial); Sugar, 56 oz.; Distilled Water, q.s. Dissolve the Iron and Sodium salts in separate portions of the water, mix the solutions, collect the precipitate, wash it, dissolve it and the alkaloids in the phosphoric acid, mix all together, and add the sugar to form a syrup.

The new U. S. Pharm. has adopted a different formula, leading to about the same result, except that it contains the ferric phosphate, is more easily worked, and yields a more stable product.—ED. AM. DR.]

Proportion of Quinia Sulphate.—If the directions given here are carefully followed, the product will measure between 24 and 24½ fl. oz., and will contain the quinia phosphate derived from 192 grains of sulphate. Approximately, then, 1 grain of sulphate of quinine has been used in the production of 1 fl. drachm of syrup, which corresponds to 0.86 grain of phosphate of quinia per fl. drachm. The amount of this latter, in a sample of syrup prepared in accordance with Dr. Easton's formula, deduced from the amount of alkaloid extracted, was 0.814 grain per fl. drachm, that is, 6.51 grains per fl. oz., whereas, in various other samples of commerce, the amount of phosphate of quinia varied from 1.57 grain to 7.13 grains. A sample prepared in accordance with the Pharmacopœia of the United States yielded alkaloid corresponding to 8.56 grains of quinia phosphate per fl. oz.

Proportion of Ferrous Phosphate.—Dr. Easton's formula would give a maximum of 5½ grains per fl. oz. only, instead of the 8 grains, as claimed. But even that amount of 5½ grains per fl. oz. is, most probably, not reached, since, in the process of decomposition, a quantity of sulphuric acid becomes liberated which doubtless prevents a portion of the ferrous phosphate from being precipitated. The amount of iron present in the samples examined was equivalent to ferrous phosphate varying from 0.97 grain per fl. oz. to 12.32 grains. The amount in a sample made in Easton's formula was found to be 4.7 grains.

Proportion of Strychnine.—This varied from 0.6–0.8 to 3 grains per 4 fl. oz.

The sample prepared according to formula showed 8 grains in 4 fl. oz.; by this test, theoretically, 1 grain should be found in this quantity.

Phosphoric Acid.—Commercial samples contained from 19.36 to 49.24 per cent of this acid. A sample made according to Easton's formula yielded 37.68 grains per fl. oz., and the theoretical amount is 38 grains. The sp. gr. varied from 1.270, in the standard sample, to 1.326.—*Chem. and Drug.*

* Abstract of a paper read by Rob. H. Davies, F.I.C., F.C.S., and Emil B. Schmidt, Ph.D., at the late Brit. Pharm. Conf.

† "Companion to the British Pharmacopœia," 13th edition, p. 148.

AUTOMATIC WATER STILL.

THE illustration represents an automatic water still for the use of druggists, chemical laboratories, etc. The lower vessel is the boiler, the middle one the condenser tank, the upper one a supply tank. The boiler and supply tank are closed, except for the attached pipes, etc.; the condenser tank has a loose cover.

Of the four pipes shown, *A* is the steam and condensed water tube, coiled, as shown, in the condenser tank full of water, and delivering distilled water at *A'*; *B* is a pipe leading from the water level in the boiler to the top of the supply tank; *C*, a pipe, with cock, leading from the bottom of supply tank to the bottom of condenser tank; and *D*, a pipe leading from top of the condenser tank to bottom of boiler.

E is an opening, with air-tight stopper, for filling supply tank; and *F*, a cock to draw off hot water from boiler.

The supply tank and condenser tank being filled with water (through *E* and the open top of condenser tank), *E* and the cock in *C* both closed, and the boiler empty, the cock in *C* is opened. Air has free access through *A* and *B* to the top of the supply tank; it, therefore, enters, and water flows out of supply

tank into condenser tank through *C*. This displaces the water in the upper part of condenser tank, which flows through *D* into the boiler. This action continues till the water has risen in the boiler above the lower opening of *B*, thus cutting off the supply of air to condenser tank, and so the flow of water. Heat is then applied to the boiler in any convenient way; boiling soon begins, steam passes off through *A* and is condensed therein, and delivered as distilled water at *A'*.

When, by evaporation, the water level in the boiler is lowered so as to uncover the lower opening of *B*, the air again enters the supply tank through *A* and *B*, water flows through *C*, and the water at the top of the condenser tank, now heated by condensing the steam, passes over into the boiler, till the opening of *B* is again closed. This action continues, at intervals, so long as water remains in the supply tank.

The advantages of this still are: that it is extremely simple, and always ready for use, upon simply filling and heating; requires no setting up, no adjusting of tubes to a water supply for condensing; it requires very little heat, beginning to boil very soon after heat is applied, and utilizes waste heat, as the process goes on. In the ordinary still, the whole mass of water must be heated before steam is obtained; in this only a stratum less than an inch deep, which is replenished by hot water, as it boils away, not stopping the boiling. It is entirely automatic; no attention is necessary from the time heat is applied till the supply tank is empty, or the water in the condenser tank all boiling-hot. The supply tank can be refilled, if desired, without interrupting the boiling.

Hot water can be drawn from the boiler without interrupting the boiling, and with the result of increasing the amount of distilled water yielded. It is cheap, its first cost being much less than that of a still doing the same work; and the heat required being less, the cost of running is proportionately reduced. The size shown in cut, with boiler, etc., six inches in diameter, is the ordinary druggist's and physician's size, and will yield a quart of distilled water with no attention, and any required amount more by refilling the supply tank, and drawing off hot water from the boiler. Larger sizes are made for other uses. We are informed that a still with condenser tank, fourteen inches in diameter, and fourteen inches high, has for six months furnished distilled water and hot water in abundance for from ten to seventeen students, in the laboratory of Iowa College, under the charge of the inventor.—*Sci. Amer.*

American Proprietary Medicines in Belgium.*

MY dispatch, No. 37, published in No. 25 of Consular Reports, has attracted some attention from those who deal in patent medicines both in the United States and in England. I have in consequence received many letters of inquiry from both countries. I have answered promptly all those coming from the United States. In order to be as precise and practical as possible, I herewith inclose an advertisement of *** ******* which may give our dealers in patent medicines a more thorough insight into what is required to introduce their goods than any plan I could devise.

*** ******* are here in full force, and have come to stay, by just such a method as the simple inclosure is a key to, and which is so well known with us. The inclosed advertisement† is distributed throughout the city, and handed to every passer-by. In the United States, seventy-five persons out of a hundred now refuse such advertisements when offered them on the streets. I have never seen one refused here, nor have I ever seen one cast aside without being read.

There is no country, therefore, where printer's ink is more potent. In each shop where *** ******* are sold, there is also a larger card than the one inclosed, on the same style, indicating that this article is dealt in. Since my dispatch No. 27, I am glad to see other familiar medicines in windows here, among them **** *** ***; wherever one of these medicines is seen, there also is seen the introducing agency, the card, gay and attractive enough to catch the eye of the passer-by, and call attention to the article.

The same thing is true also of our tobacco, cigars, and cigarettes. The Belgians and French take much pride in their show-windows, and arrange them in a style bordering on the artistic; and when they can find a chromo like that which is given to dealers in Richmond Gem Tobacco, or an attrac-

* From a report by U. S. Consul Geo. C. Tanner, of Liege and Verviers.

† This advertisement is in the form of an American flag, 3½ by 6½ inches, with the reading matter (in French) on the white stripes.

tive card like that which is given by the Chicago Cigarette exporters, in many instances the article is bought so that the show-window may be embellished by the advertisement. It will be seen by the inclosed advertisement that *** ******* retains its English name, and I would recommend this plan to all others. An idea pervades people that things that are foreign possess superior virtues to those found at home, and this is as much the case in Belgium as in the United States; therefore the foreign name is a recommendation. Dispatch No. 27, in addition to the letters written to this consulate, occasioned a visit from Mr. Charles Delacre, a well-known pharmacist of Brussels, who deals extensively in patent medicines, both American and English. He had a plan to mention by which American medicines might be introduced, which I asked him to write out for me and I would submit to the Department, which I herewith inclose. I shall offer no comments thereon, preferring that the American dealer should follow his own judgment in the matter.

Mr. Delacre, I am satisfied, possesses all the energy and other requisites for an intermediary, should the American dealer approve his plans. I beg to take this occasion to say to American dealers, that, while it affords me pleasure to be of the slightest service to them, a consul who performs strictly his duties, should be spared, as much as possible, unnecessary inquiry, that takes up his time, and which requires for an answer a repetition of what he has already written. I have no doubt that parties in most instances who make these inquiries do so from having seen short and imperfect extracts of the report in some journal when, were they to see it in full, every thing would be clear to them.

Norwegian Cod Fisheries.*

THE total catch in Lofoden and other districts, running up to nearly 24,500,000 of cod fish, shows a difference of 15,500,000 from last year, when the catch amounted to about 40,000,000. The reason for this considerable falling off cannot be attributed, as usually, when one year's catch proves smaller than another, to hindrances from fishing by storms and rough weather, but must be ascribed to the fact that the fish this year did not approach our coast and enter our "fjords" in such large quantities as usual.

It is a general belief that the cod fish which yearly visits our coasts have been suffering for several years for want of sufficient food. In this season the fish proved to be even thinner and more meagre than last year. When, under ordinary circumstances, 300 to 400 fish are required to fill a barrel with livers, the average quantity needed in the preceding season was about 700 fish; this year it has raised from 700 to 900, and sometimes up to 1,500, according to the different places. This circumstance will reduce the production of oil in a very considerable degree. When, further, 4 to 5 barrels of livers have been used for rendering a barrel of steam-refined oil, being the double of what is required when the liver is fat, it is evident that the quantity of all oils will be very limited. The poorness of the livers will also, no doubt, have influence upon the quality of the oil. Statement No. 2 shows the quantity of steam-refined oil produced in this season in the different catching districts compared with the production for the preceeding five years. Of oils it is merely the steam-refined cod-liver oil which is exported from here to the American market.

According to the official report, 31,200 men have been engaged in the fishing in Lofodon. Of this number, which is the largest ever recorded, were 7,800 men net-fishers, 19,750 long-line fishers, and 3,650 deep-line fishers. In 1882, the number of fishers amounted to 27,500; in 1881, 26,700; and in 1880, 25,500 men.

The number of vessels present in the district was smaller than last year. The largest number is stated to be 583; last year this reached 666. The number of boats amounted to 7,870, which is the greatest number ever known to have been gathered in Lofoden.

The weather was, as always, somewhat unfavorable in the beginning of the fishing season, but later it was upon the whole very favorable. In all there were thirty-two good sea-days, and thirty-two days when only a part of the day could be used for fishing. The season for catching in Lofoden lasts from the middle of January to the middle of April. Thirteen boats were wrecked and seventeen persons were drowned during the catch.

The average prices were 22 kroners* for liver and 36½ for fish roe per barrel, and 23¼ kroners for raw fish per 100 pieces.

The gross value of the catch is estimated at four and four-fifth millions of kroners, against six and four-fifth millions in 1882; five and one-tenth in 1881; and six and four-fifth millions in 1880.

The gross average earnings amount to 90 kroners for a net-fisher, 200 kroners for a long-line fisher, and 80 kroners for a deep-line fisher, against, respectively, 70 kroners, 340 kroners, and 150 kroners in last year.

The catch in Finmarken has not yet begun. The prospects for this fishery seem to be this year very doubtful. The prices of all fish goods have, therefore, risen considerably. A barrel of steam-refined oil costs at present $85.

* From a report by U. S. Vice-Consul John C. Isdahl, of Bergen.

I.

STATEMENT SHOWING THE QUANTITY OF COD FISH CAUGHT IN THE DIFFERENT FISHING DISTRICTS, AND THE QUANTITY OF GOODS RESULTING THEREOF.

DISTRICTS.	COD FISH.	STEAM-REFINED OIL. BBLS.	LIVER. BBLS.	FISH ROE. BBLS.
Lofoden....	16,000,000	850	12,250	14,300
Nordland...	4,250,000	.....	4,600	4,800
Nordmor...	1,750,000	75	750	1,500
Romsdal	200,000	20	90	80
Sondmor....	2,200,000	100	1,000	2,000
Total....	24,500,000	1,045	18,690	22,680

II.

STATEMENT SHOWING THE PRODUCTION OF STEAM-REFINED OIL IN THE DIFFERENT FISHING DISTRICTS COMPARED WITH THE PRODUCTION IN THE FIVE YEARS PAST.

DISTRICTS.	1883. BBLS.	1882. BBLS.	1881. BBLS.	1880. BBLS.	1879. BBLS.	1878. BBLS.
Sondmor..	100	600	2,200	4,500	2,700	1,200
Nordmor..	50	60	800	1,800	†	†
Romsdal..	20	40	450	950	500	650
Lofoden...	850	1,300	2,570	3,065	2,750	3,600
Nordland..	.....	.....	.....	.....	.....	.....
Finmarken	*	2,100	4,000	3,400	3,080	†

* Fishing not yet begun. † Unknown.

* 1 kroner = $0.26.8.

Soaps as a Vehicle for Medicine.

PURE soap alone is a valuable and convenient remedy for many affections of the skin, causing a softening and soothing influence pleasant to the feelings and the sight, besides exerting a healing effect in most cutaneous diseases; and from this softening property it causes any medicinal substance it properly contains to act more certainly, and with greater promptness, than perhaps any other vehicle that is at present known.

In adding a medicinal substance to soaps, some intelligence should be had to properly understand the character and compatibility of the several constituents of each, for there are many drugs that are not suited to mix with soap, that will not combine or are decomposed and changed by the alkali present in all soaps, and which is always present in slight excess, else it would not do proper duty as a soap; for though soaps are not truly soluble in water, yet their action in use causes an emulsion that has this softening action and pleasant effect, though it be washed away with more water, leaving scarce a trace of soap behind.

In making a medicated soap, the first care should be to have the purest and cleanest fats or oils that can be obtained, and also the best and purest alkali known, while great skill must be exercised in the making to insure a perfect combination, in fact, a thorough soap; and there are few ready made that can be recommended, as sophistication is now a common practice in the making of almost all the soaps of commerce. Having such a soap, the best means of combining the remedy is by means of the mill, for it can be added without heat, while the perfume if used can be combined at the same time. All colors as a rule should be avoided, unless the drug will give an unpleasant one; then to please the eye a color can be used, but care must be taken to have an inert or harmless color, compatible with the medicine.

The best and more suitable soaps for medicinal purposes are undoubtedly those made from vegetable oils, such as olive, palm, and almond oils, though mutton tallow would make a very suitable soap combined with any of the oils named; and if cheapness is desired, a little resin will not injure its healing qualities, but in some cases might prove beneficial, as it enters into many healing salves in the pharmacopœia. In using palm oil it should be previously bleached, as the natural color it contains is an objection; this oil is particularly applicable for medicated soaps, but as by itself it becomes too hard, it is well to add a nut oil or cotton-seed oil to give it plasticity.

It is impossible here to give all the formulas for the different medicated soaps, or in fact, even a list of the many substances that could be combined with soap to make such; yet I shall try and mention a few that I think are the most worthy. Thus for cosmetic purposes the juice of the lettuce and cucumber have a blanching effect on the skin; benzoin, tar, petrolatum, and carbolic acid give their healing properties to all soaps, and borax has a very softening influence. For disinfection, soap is a good vehicle for menthol and thymol, and other well-known drugs; in fact, with suitable intelligence the manufacturer

could make an endless variety of medicinal soaps, using the drugs in the proper proportion and making them all carefully. A mucilage of gum tragacanth added to all soaps for medicinal purposes causes them to be more emollient, and softens the skin.—*R. S. Cristiani, in Oil, Paint and Drug Reporter.*

Importation of Wines at Bordeaux.*

THE customs statistics for the first three months of 1883, compared with the corresponding period of 1882, give the following figures for the importation of wines at Bordeaux:

COUNTRIES.	FIRST QUARTER 1883.	FIRST QUARTER 1882.
	HECTOLITERS.	HECTOLITERS.
Spain	227,675	231,538
Italy	47,982	8,727
Austria-Hungary	12,000	6,600
Other countries.	115,919	69,502
Total	403,576	316,367

During 1882, owing to the high prices demanded, very little wine was brought from Italy. At present there is a decided increase in the importation of wines from that country.

Portugal, almost exclusively comprised under the title of "other countries," furnishes a large per cent of the wine imported, greatly to the disadvantage of Spain.

The importation of wines into France, and especially at Bordeaux, is steadily increasing. Bordeaux received during the first quarter of 1883, 221,468 hectotiters of French wines less than in the corresponding quarter of 1882. This is a great diminution, and shows how poor the last vintage was in quantity.

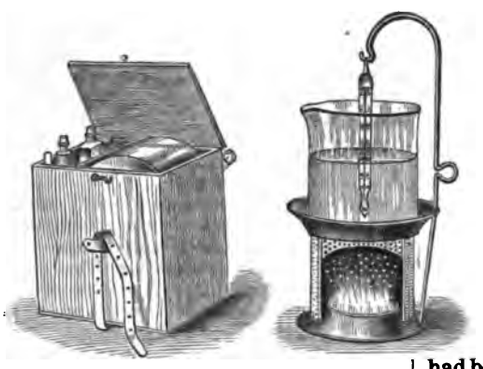
[We were recently informed that an American gentleman, being in Spain, took advantage of the occasion of a visit to Xeres to buy for his own consumption a quantity of sherry. Shortly after the purchase he saw at the railroad depot a number of casks of wine, which, on inspection, proved to have come from Cincinnati, Ohio, and bore the brand of a well-known wine merchant of that city.—ED. A. D.]

A Novel Adulterant of Scammony.†

A SAMPLE which represented a direct importation from Constantinople came into the author's hand for the purpose of analysis. It consisted of several small pieces which had apparently been broken from large, thick cakes, with the object of obtaining a representative specimen of the bulk from which they were taken. These were of an uniformly dark, ash-gray color, breaking easily and presenting a resinous, shiny, black fracture, indistinguable from pure virgin gum. Triturated in a mortar, the pieces were easily reduced to a buff-colored powder, somewhat darker than what is usually obtained from the virgin gum. This powder formed a very nice emulsion with water, and in other respects appeared quite satisfactory. To ether, it yielded 83.8 per cent of a nice, amber-brown resin, and a decoction of the residue, when cooled, was turned blue by iodine, as is usually the case with nearly all commercial specimens. The starch thus indicated was found by the microscope to be wheaten. So far nothing arose to create suspicion; but the resin obtained by the extraction with ether had a peculiar smell, which recalled the odor of the resin prepared from the root by means of alcohol, pharmaceutically known as scammony resin. Another portion of the sample was powdered and compared with a sample of true virgin powder, and at once revealed the presence of the resin prepared from the root. This resin will reveal itself by its very peculiar and persistent leathery odor, while the true gum possessed a quite as distinctive sour, cheese-like odor. There was no doubt that this parcel has been made up of some skillip scammony and resin prepared from the root.—*Chem. and Drug.*

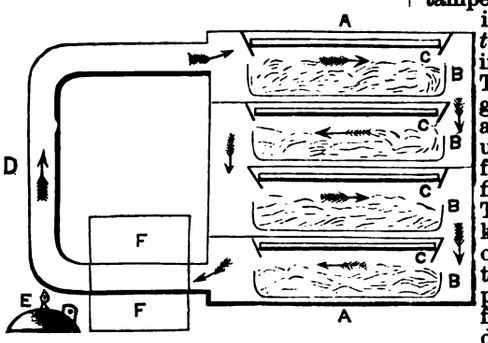
* Report by U. S. Consul Geo. W. Roosevelt, in United States Consular Reports, August, 1883, p. 355.

† Read by Michael Conroy, F.C.S., at the late Brit. Pharm. Conf.



SAVORY & MOORE'S PEPTONIZER.

THIS London firm of manufacturing pharmacists are offering a convenient apparatus for facilitating the peptonizing of milk, which needs no description beyond the illustration here given, which may also serve as a hint for some of our own manufacturers of druggists' sundries.



DRYING OVEN.

A SIMPLE form of drying oven, suited to pharmaceutical uses, is described in the *Photographic News:*

A, A represents a box or cupboard, with shelves placed alternately like baffle-plates; B, B, B, B, movable trays or dishes holding dried calcium chloride; C, C, C, C, the coated glass plates, resting in grooves, so that the gelatinous coating shall be directed downwards towards the calcium chloride; D, a bent tube, which is so heated by the lamp, E, as to cause the same air to circulate continually in the direction indicated by the arrows; F, F, a dotted space showing the position of chloride of calcium box in another form of the apparatus.

That form of the apparatus in which the trays containing chloride of calcium are replaced by a receptacle in the place indicated by dotted lines (F F) is especially effective, as in this case the air is desiccated just before it is heated by the lamp, an obviously advantageous arrangement.

Imitation Amber.—Roessler's recipe is to melt one part of rosin (colophonium), then add two parts, by weight, of shellac. When the mixture becomes sufficiently fluid, one part of white rosin, which should be clear as water, is then added.

Preservation of Medical Plants.*

BOTH the practising and pharmaceutical branches of the medical profession are agreed as to the advantages of fresh medicinal herbs over the same substances in a dried condition, and a simple process which would supply fresh herbs all the year round has long been a desideratum. The physician complains of the inferior physiological activity of the tincture made from the dried leaves: for example, tincture of hyoscyamus made from the fresh leaves will, if dropped into the eye, cause marked dilatation of the pupil; whereas the tincture made from the dried leaves causes no such reaction. He knew an instance where such tincture was returned with a query whether it was not tincture of belladonna. The late Mr. Donovan, of Dublin, had a tincture of digitalis which was much relied on. In making this tincture he brought the alcohol to where the fox-glove was growing, took the plant from the ground, bruised it, and plunged it into the spirit. He maintained that tinctures, to use his own words, "should be made from the live plant." The author doubted if ethylic alcohol extracted the virtues of all herbs; said that the manufacture of black drop had been revived in Dublin; wished that glycerin and alcohol had been ordered for the preservation of juices; and stated that green extracts strictly P. B. would not keep through the winter. A supply of herbs preserved in a practically fresh condition throughout the year would therefore be very valuable.

The herbs in a perfectly fresh state were bruised to a pulp in a mortar, and placed in glass bottles, well tamped down; the stopper was forced in so as to exclude *every particle* of air, and the top encased in beeswax softened by heat. The bottles were buried in the ground at a deph of three feet; and so treated, belladonna, conium and other herbs kept for four months perfectly sweet and fit for pharmaceutical purposes. The bottled herbs would probably keep for six or even eight months, or perhaps longer. Now and then a bottle will fail from imperfect manipulation, but the failure is at once rendered evident by the spots of mildew appearing in the vegetable.

The factors of the decomposition of vegetables were the putrefactive germs contained in the air, the actinic rays of the sun, heat, and moisture; and their comparative influence was shown by some experiments.

This method is indispensable for medicinal herbs which must be used in the fresh state, such as *Galium Aparine*, which is now much employed as a dressing for ulcers and cancers. It is bruised fresh, made into a kind of poultice, and placed upon the sore, but a bottle once opened, like a bottle of claret, must immediately be made use of.—*Chem. and Drug.*

Eruption from Chlorate of Potassium.

STELWAGEN records the case of a patient suffering from mucous patches of secondary syphilis for whom tablets of chlorate of potassium of five grains each were prescribed. Four days later a fiery, erythematous and papular eruption made its appearance over the back and neck. There were no subjective symptoms. The possibility of mercury having produced this eruption was carefully excluded. The eruption disappeared two days after discontinuing the drug, but reappeared on three other occasions, when the chlorate of potassium was administered for experimental purposes.—*Med. Record.*

* Abstract of a paper read by Prof. F. J. B. Quinlan M D., at the late Brit. Pharm. Conf.

German Paraffin.

It will be remembered that the new German Pharmacopœia directs paraffin ointment to be made by mixing liquid paraffin and solid paraffin. The latter was required by the Pharmacopœia to respond to such rigorous tests that no specimen found in the market at the time when the Pharmacopœia made its appearance would stand the test. Shortly afterwards, however, the efforts of the manufacturers to produce such articles were crowned with moderate success; and since then the products in question have been still further improved; so much indeed that they stand even more rigorous tests than the Pharmacopœia requires.

Prof. Flückiger reports that the liquid paraffin made by Carl Hellfrisch & Co., in Offenbach, has the spec. gr. 0.858 at 21° C. and has its boiling point higher than 360° C. When in contact with sulphuric acid of spec. gr. 1.840, at the temperature of the water-bath, for several days, and frequently shaken, it assumes a tint which can only be called yellowish, but scarcely brownish.

The solid paraffin of the same firm does not melt under 80° C., has spec. gr. 0.918 at 18.75° C. and resists the action of sulphuric acid as well as the liquid paraffin.—*Pharm. Zeit.*, No. 48.

COLCORD'S BOTTLE-TAP.

This appliance, invented by Mr. J. W. Colcord, of Lynn, Mass., is a decided improvement upon the various taps heretofore in use. It consists of a threaded tube, provided with a gimlet-pointed tip, which facilitates its introduction through the cork, but which, when once through the cork, drops to the bottom of the bottle, or is pushed out by the draft-tube. The draft-tube passes through a rubber packing at the top of the threaded tube, and has a stop cock which controls the escape of the contents of the bottle. Attached to the side of the threaded tube by means of rubber tubing is an air-ball with valves, which enables the pressure in the interior of the bottle to be kept up to any degree requisite. The improvement upon other taps consists in the fact that the draft tube can be pushed to the bottom of any ordinary bottle. The bottle can always stand on its base and does not require to be held bottom upward, while the contents are being drawn; thus enabling the glass to be held instead of the bottle. There is no risk of loss of gas from careless opening of the tap, while the bottle is erect. Moreover, with other styles of taps, it is the gas filling the space above the fluid which exerts the pressure requisite to drive out the contents, and all the gas thus liberated from the beverage correspondingly lessens the amount contained by it. Oftentimes this deprives the beverage of just the element which renders its use desirable. When the contents of a bottle have been cooled to render it more agreeable, the expansion of its gas is considerably lessened and may not be equal to the force required for its expulsion. All these difficulties are avoided in this tap here described. The pressure is always under control, and may be made sufficient to hold the carbonic acid in the liquid, thus maintaiaing its properties until the last is used.

The Way to Study Prescriptions.

"Two precautions will greatly limit waste of time over studying prescriptions. The first is never to learn a prescription excepting in connection with the study of some particular disease or symptom, and as far as possible to augment such study by an interest in some particular case, neglecting even, sometimes, routine work to learn all about a case which offers itself to the notice. The second precaution is to make the personal acquaintance of each drug and chemical before learning to write for it. After having dissolved a teaspoonful of chlorate of potash in a tumbler of water, it is easy to learn to write a prescription for the same, and the subject of materia medica would be shorn of much of its difficulty if a little time were occasionally taken from the note-book to be spent in the drug-store, or in mixing at home the drugs bought by the student, if only to be thrown away. Time and money spent in this way are not wasted, and a few prescriptions, first met with in a medical journal, and then studied in this practical way, will remain in the memory when the hundred in the note-book shall have been forgotten."—Editorial in *Boston Med. and Surg. Journal.*

Paper Gas Pipes.

These are made by passing an endless strip of hemp paper, the width of which equals the length of the tube, through a bath of melted asphalt, and then rolling it tightly and smoothly on a core, to give the required diameter. When the number of layers thus rolled is sufficient to afford the desired thickness, the tube is strongly compressed, the outside sprinkled with fine sand, and the whole cooled in water. When cold, the core is drawn out, and the inside served with a waterproofing composition. In addition to being absolutely tight and smooth, and much cheaper than iron, these pipes have great strength; for, when the sides are scarcely three-fifths of an inch thick, they will withstand a pressure of more than fifteen atmospheres. If buried underground, they will not be broken by settlement, nor when violently shaken or jarred. The material being a bad conductor of heat, the pipes do not readily freeze.

Herniaria Glabra in Cystitis.

Herniaria glabra, besides being of benefit in acute cystitis of the neck of the bladder, has been used successfully in chronic cystitis, and in the bladder and urethral troubles attendant upon certain conditions of the womb and vagina.

It seems also to possess an important preventive action in cases of gonorrhœa, *i. e.*, it limits the inflammation to the anterior portion of the urethra, and renders less liable the extension of the disease to the deeper part of the urethra and appendages, and the bladder. It has been used by one physician in thirty cases of gonorrhœa, and in none of these cases has the inflammatory action passed deeper than is ordinarily found in a simple case of this disease. This preventive action will, as a matter of course, render far less probable that disagreeable but common accompaniment of gonorrhœa, epididymitis.—*Cin. Lan. and Clinic.*

Poisoning by Citrate of Caffeine.

The Practitioner gives the report of a case where the patient took ʒi. of citrate of caffeine in powder, which was dispensed by mistake for Bishop's effervescent preparation. In fifty minutes, he complained of burning in the throat and giddiness, with vomiting and purging, and abdominal pain. The intellect was clear, though he was almost paralyzed and trembling; pulse 120, and patient in a state of collapse. Animal charcoal, nitrite of amyl, and ether finally produced vomiting, which was followed by the administration of one-minim doses of nitro-glycerin with digitalis. At the end of nine hours he came out of the collapse and recovered in three days.

BURGESS' AIR-COMPRESSOR.

In April, 1880, we described an apparatus for compressing air so as to furnish a steady stream under a pressure of five to fifteen pounds to the square inch, such as is required for blow-pipes, filter-pumps, atomizers, and a variety of work about laboratories and physicians' offices. Through the kindness of Mr. J. Elliot Shaw, 154 So. 4th street, Philadelphia, the maker of these compressors, we have had an opportunity for examining a recent modification of the apparatus wherein its usefulness is considerably increased. As will be seen in the adjoining illustration, it consists of a short pump, worked by a foot-treadle, which forces air into a stout metallic reservoir. Less than a minute suffices to give a pressure of ten pounds to the square inch, and a pressure-gauge is arranged so as to indicate any degree from one to twenty pounds. The reservoir is strong enough to resist a greater pressure than can be attained by the pumping apparatus, as ordinarily used. To prevent leakage when the reservoir has once been filled, a stop-cock (seen, in the illustration, below the reservoir), can be closed; and with a pressure of ten to twelve pounds, there will be air enough in the reservoir to keep up a spray, with a good atomizer, for ten minutes. A handle on the top of the air-chamber enables the apparatus to be moved from place to place. The whole weighs but twelve pounds, and costs somewhere in the neighborhood of $18.00. This is much cheaper than the other forms of air-compressors in general use, and it seems to be equally durable and far more efficient.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 1. WHOLE No. 115.

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

JANUARY, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00

SINGLE COPIES, - - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & CO., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

Ourselves.

IN accordance with our announcement last month, several important changes have been made in the form and arrangement of this journal, which, it is believed, will increase its value to all who are connected with it. The first of these alterations, and the one which will probably first attract attention, is the change of name.

Rather more than twelve years ago, when the journal was first issued, the attention of physicians and pharmacists had been but lately directed to the discovery of several new and valuable medicinal agents. The study of therapeutics, which for many years had languished, owing to the activity of research in the field of pathology, began to receive a greater share of attention, and the opportunity arose for a magazine which should give a quarterly summary of advances in pharmacology. After more than four years of existence in this form, during which time numerous medical journals came into existence throughout the United States, and articles on therapeutical subjects were more generally published, NEW REMEDIES became a monthly, and gradually omitting all but the more important matter relating to therapeutics, increased, in the same proportion, that relating to pharmacy and medical chemistry. At the time of this change to a monthly issue, there existed in this country but two other journals relating in any considerable degree to pharmacy, and the success which at once followed the adoption of the new form was sufficient evidence of the need for just such a magazine as was then offered to the drug trade. This success was so evident in the case of NEW REMEDIES that it is doubtless one of the reasons for the rapid development of pharmaceutical journalism in this country during the past ten years, so that now there is no country in the world whose pharmaceutical literature is more widely read or more highly esteemed.

As time passed, the title NEW REMEDIES became to some extent a misnomer, for while due attention has been given to the very numerous novelties in materia medica, much more space has been devoted to writings upon newly-discovered properties of *old remedies* and to the correction of false information respecting the nature and uses of things already more or less familiar to pharmacists and physicians.

Moreover, it may be said that, owing to the adoption of the title "NEW REMEDIES" by certain dealers in drugs in this country and abroad, as a heading for their advertisements, there has been, among a certain number of persons, an impression that the journal is published in the interest of one or another enterprising drug firm. Those who are in the least degree familiar with its contents need not be told that this has never been the case. Again, pharmacists who have reason to look with no pleasurable emotions upon the "new remedies" which they have been induced to purchase on the strength of one or two physicians' prescriptions, but which have since stood uncalled for on their crowded shelves, can hardly be expected to favor a publication which, by its title, seems to promise only additional occasions for emptying their pockets and still further increase their stock of comparatively useless wares; and it may readily be presumed that the journal has thus far flourished in spite of its title rather than on account of any confidence it may have inspired.

The new title will be entirely in accord with the spirit of the text, which in the future, as in the past, will aim towards the education of its readers and the advancement of the best professional and commercial interests of the druggists of this country.

Next, as to its size. It is a matter of experience with publishers that for the purposes of advertisers a certain size of page is most desirable. When pages are small they necessitate the use of less matter or the employment of additional pages; both alternatives being more or less objectionable. On the other hand, a journal which exceeds a certain size becomes awkward for the reader and occupies too much space to admit of its being kept on the ordinary book-shelf. It has been the intention of the publishers of the AMERICAN DRUGGIST to avoid extremes and to adopt a size of page which will permit the displaying of matter, such as may be found in our advertising pages, and at the same time enable the journal to be held by the reader in one hand, or laid upon its side on a shelf without overlapping the edge of the latter so far as to risk falling or obscure whatever may be placed on a shelf below. Another advantage in the size of page selected is the opportunity afforded for arranging illustrations. Not unfrequently it happens that illustrations must be rejected because they cannot be conveniently, or without considerable expense, reduced to the limits of a small page, or that the illustrations of an article have to be placed on succeeding pages because there is not room enough on one, and reference and comparison of parts is thereby rendered more troublesome.

Some years ago the type used was long primer and brevier, but for the sake of gaining space for more matter, the use of the former was abandoned, and brevier alone was used. In making the new changes, the size now adopted is between the two, viz., bourgeois, and an entirely new supply of type with a large face has been specially procured for the purpose.

Although the number of pages has been reduced to twenty in each issue, it will be found, by careful examination, that, owing to the increase in the size of the page, the amount of matter has also been somewhat increased.

The above estimate does not include the reading matter on the advertising pages, which, if added to the text of the journal proper, doubles the reading matter in each number.

Aside from the advantage accruing to advertisers from having their notices adjoining reading matter, the introduction of this novel feature of the AMERICAN DRUGGIST is not without its interest for subscribers. It may be said here that this additional reading matter is not intended to be considered as coming strictly within the text of the journal proper, but at the same time it is intended to supply, in this department, items of general or ephemeral interest, to be preserved or not, as the subscriber may choose.

Another feature of this journal is the number and variety of illustrations. Since its introduction there have been few medicinal plants or pharmaceutical appliances of notable value which have not been illustrated in its pages, and this feature continues to be one which distinguishes it from all other journals of its class.

There is always a limited number of readers who fail to see in a large advertising patronage controlled by a journal, any advantage for themselves, but are inclined to find fault in proportion as the advertisements increase.

If this increase were secured by correspondingly reducing the reading-matter, there might well be reason for such dissatisfaction; but when, on the contrary, the number of pages of text remains the same, the addition of advertisements serves as a source of revenue whereby the character of the text can be improved. This is true of all journals, the ones ranking highest in excellence being, as a rule, the ones which are most largely patronized as advertising mediums; and it is likewise true that it is only such as possess a large advertising patronage that can afford, for any considerable time, to incur great expense in improving the quality of reading matter, or in paying for expert work.

As it is, counting the entire amount of reading matter in each issue, there is no druggist's journal in the world which furnishes anything like the same amount of reading matter, or which costs the subscriber so little, as the AMERICAN DRUGGIST.

Respecting the future we have rarely made promises, feeling that the course of the journal in the past and the fa-

vor with which it has been received, both at home and abroad, should serve as a sufficient guarantee of its merits. Numerous letters of approval from subscribers and advertisers have been received, but have never been published, because we have believed that the journal should speak for itself. Such letters are, however, highly gratifying to both the editors and publishers, and when accompanied with friendly criticism and suggestions calculated to increase the value of the journal, are doubly acceptable. We shall also welcome, at all times, the receipt of communications on topics of interest to druggists, whether they relate to the scientific or commercial phases of the trade, and shall spare neither labor nor expense to illustrate whatever may be capable of such treatment.

Especial pains will always be taken by the Editors to answer queries relating to subjects coming within the province of the journal, and druggists and their employees, who meet with problems at the prescription counter or in the manufacturing department, will confer a favor upon the trade generally by sending them, with such comment as they please, to the "Queries" department of the AMERICAN DRUGGIST.

Manufacturers and inventors who have novelties of interest to the drug trade, are always welcome to the gratuitous use of our columns, providing the wares are not secret and that they have not already been noticed or advertised elsewhere.

In conclusion, we wish our readers and patrons, Long Life, Prosperity, and a Happy New Year.

"Join or Die."

DURING the closing period of the revolutionary war, when independent States were contending for "State Rights," and the formation of a stable federal government seemed to be imperilled, a flag appeared which bore in its centre a serpent divided into thirteen parts, and above it the motto, JOIN OR DIE. The motto became a rallying-cry, and before many months had passed, the confederation of the thirteen States was accomplished.

This preface may serve to introduce a communication from Geo. J. Seabury, which lately appeared in our esteemed cotemporary, the *Weekly Drug News*, in which the writer suggests a remedy for cutting prices of proprietary articles in the drug trade. The suggestion is by far the best one that has yet been offered for the consideration of pharmacists in large cities, where the evil is, as yet, the greatest. There is no doubt, as the question now stands, that something must be done, or fully half of those now engaged in the business of selling drugs and medicines must turn their energies and capital into other channels in order to earn a livelihood. Pharmacists must, in fact, "Join or Die."

The plan proposed is as follows: An association of pharmacists is to be organized in New York, with stock to the amount of $10,000, in shares of $10 each, to be taken by its members. A store is to be occupied as near as possible to each pharmacist who is known to be a "scalper," and placed under the management of a committee with power to regulate prices and purchase goods. The "scalper's" prices are to be systematically "cut" in the association stores, perambulatory placards are to be kept on the blocks adjoining, day and night, and every honorable means is to be used to induce the public to patronize the association stores in preference to those of the offending pharmacists. No matter how much the latter may reduce prices, the association stores are to go still lower, and corresponding goods are to be given away, if need be, together with a tract which teaches the effects of reckless business methods upon legitimate trade. It will be but a question of time how long any private dealer can continue the warfare, and in the end he will be compelled, sooner or later, to accede to the terms of the Protective Union.

To render the "scalper's" career more brief, it is also proposed that manufacturers shall be solicited to furnish goods at specially low rates to the association store, and to refuse them, at any price, to the offending dealer. The advantage that would accrue to the manufacturer in assisting to stop the cutting by independent stores is so evident that no difficulty is likely to be encountered in this direction. When, at last, the object has been accomplished, and the "scalper" has been convinced of the error of his way, the association store can be closed.

The proposer of this plan gives, in some detail, figures which show that such united action is the only course which can save the retail trade generally from great financial losses, and that its cost is so much below the prospective losses, in case the present condition of affairs continues, that it is really trivial in amount.

National College of Pharmacy.

THERE is trouble ahead for the National College of Pharmacy, in Washington, D. C. The College having admitted, as a pupil, Mr. O. M. Atwood, a colored man, all but eight of its class of forty-six students rose in a body, and, under the leadership of the president of the college association, left the hall.

This, we believe, is the first time in the history of pharmaceutical education in the United States where sex or color has been made a basis for discrimination as to who should have the advantage of education in pharmacy, and in this instance, be it observed, the college authorities are not at fault.

It is asking a great deal of those who control the school that they should refuse to accede to the demands of the seceding students, and it is an additional source for regret that such an affair should have occurred in the capital of a nation that recognizes no distinction of race in civil rights—that is to say, it was so before the *hoodlum* decided that "the Chinese must go."

We hope, however, that no concession will be made to such a spirit as these thirty-eight students have shown, and that the College will be able to convince them by fair argument and moderate action that *civil* rights and *social* rights are quite different matters, and that their course is utterly unworthy of honorable gentlemen.

Articles Sold in Drug Stores.

"THE Druggists' Pocket Price Book," just issued, by Mr. Benjamin Lillard, is supposed to contain most of the more important articles sold by the trade in this country. Some seven thousand items are named, of which the two largest letters are P and S, each having 1,476 lines or 41 pages. Next are B, C, and E, with over 1,000 in each. The remainder are comparatively small, excepting T, with 648, L, with 504, and O and R, each with 468 lines.

About 300 kinds of ready-made pills are mentioned, showing this to be the most popular form of taking medicine. Next come plasters, ointments, and elixirs, each 100. Also 90 kinds of liniments, 75 lozenges, 20 troches, 30 capsules, 40 salves, and 15 teas. There are 65 acids, 60 essences, 140 fluid extracts, 100 solid extracts, 200 oils, 100 powders, 30 solutions, 160 syrups, 140 tinctures, 70 waters, and 60 wines. Vegetable products comprise 130 roots, 70 herbs, 60 barks, 50 gums, 45 seeds, 40 leaves, and 25 flowers. Minerals are represented by 45 compounds of iron, 40 of magnesium, 40 potassium, 80 sodium, 20 mercury, 17 zinc, and 13 of copper.

Toilet articles include 100 varieties of soap, 100 perfume extracts, and 25 colognes, and 45 kinds of paper are used in various ways.

The most popular forms of patent medicines (not including those in pills, elixirs, lozenges, liniments, etc.) are cures, of which there are 60; next come 50 balsams, 48 remedies, 37 bitters, 28 foods, 26 tonics, 24 cordials, 21 drops, 20 restorers, 18 cigarettes, 16 sarsaparillas, 13 hair dyes, and 11 pads.

Among the odd articles sometimes sold by druggists are axle-grease, artificial eyes, bath brick, bladders, bathtubs, cock-roaches, candles, coffee-pots, cushions, cigars, crutches, diapers, dice, fertilizers, fire-crackers, fishing tackle, garlic, ginger-bread nuts, games, goggles, gun-powder, hones, Indian clubs, insoles, jewelry, lanterns, lenses, magnets, marbles, matches, muslin, necklaces, oatmeal, pillows, pins, portfolios, postage stamps, putty, rabbits' paws, rattles, razors, reels, rockets, rods, sawdust, sheeting, shot, slates, spectacles, stockings, tacks, thimbles, tidies, torpedoes, towels, tumblers, watches, and wadding.

Gombault's Balsam.

SINCE our forms were ready for the press, we are in receipt of the following correspondence from Mr. S. S. West, of Cleveland:

In your December number, under "Formulæ and Information Wanted," the formula for "Gombault's Balsam" is asked for. Being familiar with certain circumstances, I will say, Mr. M. J. Lawrence, of the firm of Lawrence, Williams & Co., of Cleveland, O., some four years ago proceeded to Paris, France, to purchase the formula of the balsam from Mons. J. E. Gombault (ex-veterinary surgeon of the French Government Stud), and he informed me he offered a fabulous price for it, but all to no purpose; it could not be obtained, and so closely is the formula guarded that Mons. Gombault prepares it himself only, and is so cautious that even his employés do not know the composition of it. Mr. Lawrence, however, purchased the sole control of the article in the United States and Canada, and has it shipped to him from Paris in large iron drums, holding from sixty to seventy gallons, and bottles it for sale. Therefore I think it scarcely worth while to look up its composition, as in all probability it cannot be obtained.

National Retail Drug Association.

WE have reserved for this issue the circular of the Executive Committee of the National Retail Drug Association, which our readers will find on pages 77 and 79 of the advertisements.

SINCE our last number was issued, Michigan pharmacists have effected an excellent State organization, and we may next look for a model pharmacy law.

THE second annual exhibition of bottlers' supplies, machinery, etc., which is to be held in the building of the American Institute, on Third ave., between 63d and 64th sts., in this city, on the 11th, 12th, 13th, and 14th of December, will undoubtedly be one of the most interesting displays of the kind that has ever been made.

THE Retail Drug Trade, having aided the manufacturers to secure the repeal of the stamp tax on proprietary medicines and perfumes, find that the prices of these articles remain the same as before, and that the only persons who have derived any advantage from the proceeding are the said manufacturers.

Practical Hints for Making Cider and other Fruit Wines.

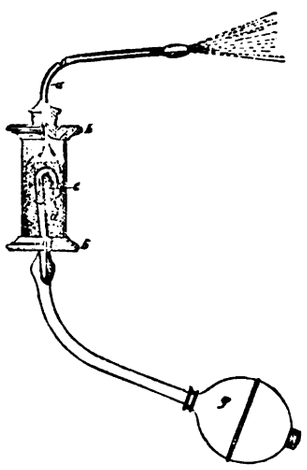
If the cider or fruit-wine is intended for sale, particular care must be taken to remove every trace of rotten fruit, which always causes a disagreeable taste and eventually produces a cloudiness. If hard fruits are to be worked, it is best to let them lie for some time, until they become softer, when they may be more readily comminuted and expressed. The contact with iron is to be avoided as much as possible; at least no iron tool or nail must be allowed to be long in contact with the fruit or the expressed liquid, as it is thereby rendered green, gray or black. A superior product is obtained if the fruit is thoroughly comminuted, particularly if crushed. Some mills are so constructed that they only tear the fruit in pieces. If carefully used, troughs with revolving mill-stones are preferable to many of the mills sold in the market. If the fruit was sound and fresh, it is generally preferable to let the crushed mass stand for one or two days, before expressing; stirring, and mixing it occasionally, and carefully covering it to exclude the air as much as possible. If water is to be added, this should be poured upon the expressed residue, and allowed to remain for twenty-four hours, when it should be separated by pressure. For every hectoliter (26¼ gall.) of water thus added, about twenty pounds of white sugar must be added to the must if the product is to keep well. It is much better to add sugar before the process of fermentation sets in, than to add brandy or alcohol afterwards. The sugar is of course partly converted, during the fermentation, into alcohol.

Should the must, after a few days, not be in active fermentation, some well-crushed, thoroughly sound fruit (apples, pears, etc.) is to be added to the cask (one-half pailful for each hectoliter) and allowed to remain until the fermentation is over. If the cask is not quite full, the access of air or rather the renewal of the air over the liquid must be prevented as much as possible, by covering the bung-hole with a bag of sand or other suitable material. If a fresh lot of must can be poured in, so as to fill the cask, during the ensuing ten or twelve days, there will be but little danger of acetic acid being generated. It is a risky matter to let must remain longer than ten or twelve days in a partly filled cask; acetic fermentation usually occurs in this case.

As soon as the principal fermentation slackens, and the larger portion of the yeast has deposited, the must is let off into a well-cleaned and slightly sulphured cask (fumigated with a very small piece of sulphur). If the must, after a while, is found no longer to ferment, two pounds of best sugar are added. The cask is to be kept as full as possible, and when the fermentation is complete, to be well bunged. Long bungs, dipping into the must even when the cask is not quite full, are better than short ones.

If it is desired to make a good deal of must from a small quantity of fruit, for home use, this may be done in the following manner. The well-crushed fruit (say about 200 pounds) is mixed with sugared water (30 pounds for each hectoliter, or 26¼ gall.), allowed to stand four days with occasional stirring and being well covered, and then expressed. The residue is now again mixed with water (50 liters or 13¼ gall.), let stand two days and again expressed. The liquids are mixed and treated like other must. Of course, this watered liquid is not intended for sale as genuine must.

Sparkling cider is made by proceeding as above stated, then putting the must, when it has fully fermented and become clear, into bottles containing, each, a little sugar, and allowing them to lie. It is important to use the proper amount of sugar; if too little is used, the product does not effervesce sufficiently; if too much is taken, the secondary fermentation is so strong that many bottles will burst. This latter also happens usually, if unfermented must is filled in bottles. For an ordinary champagne bottle, 10 grammes (154 grains) of sugar may be taken. It is best to proceed as follows: Dissolve 400 grammes (14 avoir. ounces) of sugar in enough water to make the solution measure one liter (34 fluid ounces). Into each bottle pour about 25–30 cm. (say one fluid ounce) of the solution, and fill up with must. For sparkling cider only such must as contains but a trifling quantity of acid, can be used.—*J. Nessler, in Ind. Bl.*, 20, 188.



A NEW POWDER BLOWER.

A new powder blower, made by J. U. Lloyd, of Cincinnati, after the suggestion of Dr. E. E. Sattler, is described in the *Lancet and Clinic*. It is intended for the application of boric acid, iodoform, salicylic acid, alum, etc., in powder, to the throat, ears, nasal and other cavities. The illustration renders a long description unnecessary; it will suffice to say that compression of the elastic bulb fills the chamber with a cloud of powder, which is then expelled with considerable force through the nozzle.

Action of the Extract of Guachamaca.

M. Schipper (Idene) thinks that in this extract he has found a substitute for curare, having all its properties without presenting any of its dangers.

The guachamaca belongs to the family of the *Apocynaceæ;* the ac ive principle is to be found in the bark. The extract is dark brown, resinous, it is slightly soluble in water, but not at all in absolute alcohol or ether. There exists a great resemblance between the physiological effects of this substance and those of curare. These effects were produced in frogs by injecting 10 milligrammes of the dry aqueous extract. The only differences between the action of this substance and curare are the following:

1. It affects especially the muscular system, although the respiratory muscles continue their action.

2. The nerve-centres are early affected, while curare affects them tardily. Again, contrary to the affects of curare the extract of guachamaca introduced into the stomach of chickens and dogs poisoned them in very minute doses.

Ten milligrammes of the dry extract injected into the skin of a man caused, as local phenomena, a slight phlegmonous œdema in the vicinity of the puncture, and, as general symptoms, there was at first a light sleep, then more profound, lasting from two and a half to three hours without further results, and slight spasmodic contraction of the muscles. The respiration or circulation was not affected.

Panklastit.

This is the name of a new explosive, composed of disulphide of carbon and hyponitric acid, which latter is produced by heating nitrate of lead. It can be ignited by fulminate or gunpowder, but not by a blow or by heating to 200° C. It is said to be more powerful than dynamite.

The mixture burns in the air with a brilliant white light, and may be used for illuminations; it is then called "selenophanit." For this purpose, it is best to allow both liquids to flow through narrow tubes, each separately, into a dish used as burner, which must be properly cooled. The luminosity of the mixture is greatly augmented by dissolving a little phosphorus in the bisulphide; in this case, it is called "heliophanit."—*Chem. Centralbl*, xiv., 558.

Dried Moss as a Dressing.

Dr. Hagedorn, of Magdeburg, has for six months employed, with the best results, freshly-dried swamp moss as a dressing in nearly all his operations and wounds. During the winter, he took it from under snow and ice, dried it, and let it remain in an oven, at a temperature of 105° to 110°, for an hour. Moss thus dried may be used without further disinfection as a pillow of any form or size. Other advantages claimed for it are that it allows of perfect drainage, is readily kept pure, does not require frequent renewal, and he has never seen erysipelas or septicæmia follow its use. The moss should be shaken in a coarse gauze before use in order to remove rough particles which would irritate the skin. —*Med. Neuigk.*, July 14th, 1883.

Detection of Sugar in Urine.

The following method for the detection of sugar in the urine, by means of test-papers, has been devised by Dr. Oliver: The test papers are charged with the carmine of indigo and carbonate of sodium. When one is dropped into an ordinary test tube, with sufficient water to cover it, and heat applied, a transparent blue solution results. If with the paper one drop of diabetic urine has been added, shortly after the first simmer a beautiful series of color changes appear; first violet, then purple, then red, and then straw-color, while, on the other hand, one drop of non-diabetic urine induces no alteration of color. The colors return in the inverse order on shaking the tube, which allows the air to mingle with the fluid. Reheating restores the colors. If now a mercuric chloride is dropped in, a blackish-green precipitate is obtained. No such precipitate occurs when non-saccharine urine is under examination. Dr. Oliver claims that Moore's, Trommer's and Boetger's tests are all inferior in delicacy.—*Brit. Med. Journal.*

Solid Alcohol.—A French chemist, by liquefying ethylene (olefiant gas) and then causing it to boil, produced a temperature of −157° Fahr. By holding liquid ethylene in a vacuum, another experimenter succeeded in producing the rather cool temperature of −212¼° Fahr. In this latter temperature alcohol and bisulphide of carbon were congealed, and oxygen and nitrogen reduced to liquids. Solid alcohol becomes whitish, liquid oxygen transparent, colorless, and ozone deep blue.—*Scientific American.*

Decomposition of Iodoform and Calomel by Light.

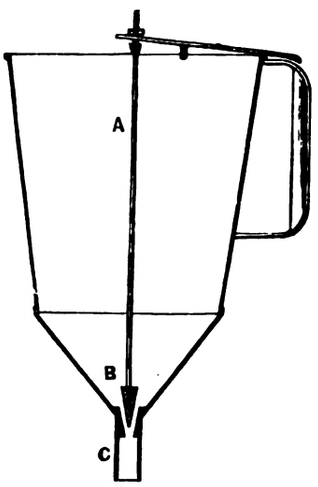
MR. S. J. BENDINER, of New York, points out that a mixture of iodoform and calomel—such as is not unfrequently prescribed by physicians as a dusting-powder for syphilitic sores—is more or less affected by light, even when the chemical rays are excluded, and at ordinary temperatures. When heat is applied to the mixture, in a test tube, the decomposition takes place more rapidly, with evolution of the vapor of chloroform and hydrochloric acid gas, which latter strongly reddens litmus paper introduced in the upper part of the test-tube.

As an explanation of the reaction, the author cites the behavior of mercuric chloride towards iodoform mentioned in Flückiger's Pharmac. Chemie. When these substances are brought together, iodo-chloroform, a substitution product of chloroform, is produced, which is almost identical in odor with the latter:

$$CHI_3 + HgCl_2 = HgI_2 + CHCl_2I$$

Iodoform. Mercuric chloride. Mercuric iodide. Iodo-chloroform.

A similar reaction probably occurs with mercurous chloride.—*Pharm. Rundschau* (Hoffmann's), 1883, 245.



HIRES' BOTTLE-FILLER.

THIS is a simple and efficient apparatus for filling bottles without waste, and is adapted to a great variety of uses. It consists of a conical vessel of heavy tin (A) with an orifice of brass (C) into which a conical brass plug (B) is closely fitted by grinding. This valve is raised and lowered by means of a wire which plays somewhat loosely through one end of a lever, adapted to be pressed by the thumb of the hand holding the filler. A spiral spring attached to the fulcrum of the lever keeps the valve closely pressed into its seat when the thumb-piece is not depressed. There is nothing about this filler to get out of order. It can be cleaned as easily as an ordinary funnel, by unscrewing the nut and removing the valve and rod. It is provided with two smaller nozzles to permit of filling small vials, and these are screwed, when not in use, into the under side of the handle. There is also provided a wire tripod for holding the filler erect and enables it to be set down without spilling its contents. It is made by Charles E. Hires, of 48 N. Delaware avenue, Philadelphia, and is sold for $1.50 (and 15c. for postage) each, or $17.00 per doz. Special kinds are made for mucilage, paint, varnish, or other thick liquids. Those who have need of a small bottle-filler can find nothing better.

Improvements in Burettes. — Dr. Tschirsch announces (*Pharm. Zeitung*) that Dr. Robert Muencke, of Berlin, has introduced burettes with a streak of milk-glass on the side opposite the graduation. Upon this background the divisions of the scale become very prominent and sharp. If an Erdmann's float be used at the same time, it is possible, in burettes graduated in $\frac{1}{10}$ *cc.* to read off as small a quantity as $\frac{1}{30}$ to $\frac{1}{40}$ *cc.*

Glycerin as an Excipient.

THE use of glycerin as a solvent in pharmacy, in the place of lard or oil, is opposed by Vigier, who calls attention to the fact that glycerin does not penetrate the skin, and is therefore a poor excipient for drugs that are to be absorbed. For the same reason, it is especially applicable where the systemic effect is undesirable, as in the use of mercuric chloride as a parasiticide, the glycerin combination being preferable to the ordinary officinal ointment, some of which is necessarily absorbed. True fatty substances are therefore required as vehicles for remedies that are to be used by inunction, while glycerin ointments may be employed where a local effect only is sought after.—*Rundschau für Pharmacie*, vol. ix., 224.

Flavoring for Soda Water or "Pop."

VARIOUS flavors are used, principally lemon and sarsaparilla. For the first, a lemon syrup is made as follows: Simple syrup, 1 gallon; extract of lemon, half an ounce; fruit acid, 1 ounce. For sarsaparilla syrup, the following is the formula: Oil of anise, 15 drops; oil of wintergreen, 15 drops; oil of sassafras, 15 drops; fluid extract sarsaparilla, 2 ounces; simple syrup, 5 pints; powdered extract licorice, half an ounce. A sufficiency of the syrup is mixed with the water, and the whole is then charged with gas.

Gilding and Silvering on Wood.

THE wood must be coated with size. To make this, boil half a pound of parchment shavings with three quarts of water, constantly stirring. This gives a clear solution of gelatin, which must be passed through a sieve. Paint over the wood with this, and, while it is still moist, apply gold or silver leaf, or Dutch metal. Much manual skill is necessary, and it is well to see the exact details practised by a gilder. Wood may also be gilded by mixing bronze powder with copal varnish, and painting it with the mixture. Finally, gold paint may be bought all ready for use, and this will probably give the most satisfaction.

Quick Drying Furniture Polish.

THE following will dry in a short time: 4 ounces of shellac is dissolved in 2 pints of strong alcohol; to this is added 2 pints of linseed-oil and 1 pint of spirits of turpentine. When mixed, add 4 ounces of common ether and 8 ounces of ammonia water. Apply with a sponge. For French polishing, shellac varnishes are often used. The following is good: Shellac, 2 pounds; mastic and sandarach, of each 1 ounce; copal varnish 12 ounces; alcohol, 1 gallon. Make in the cold, in a stoppered can or demijohn, and do not filter. This is for use in French polishing, which involves application with a rubber.

Paste or Glue for Paper-Labels.

(SAID to make a first-class mucilage for gumming large sheets of paper which may be kept for use without curling, and stick well (on glass or other substances, when wet):

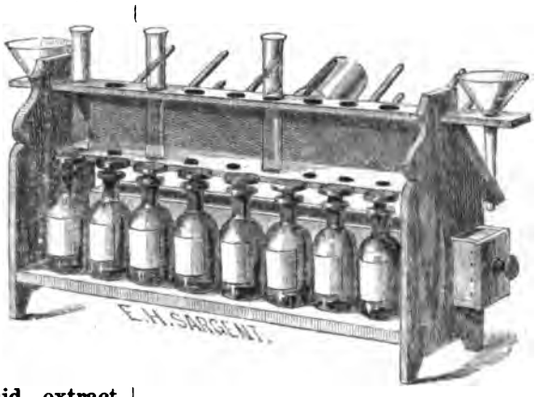
Starch	2 drachms.
White sugar	1 ounce.
Gum arabic	2 drachms.
Water	q. s.

Dissolve the gum, add the sugar, and boil until the starch is cooked.

Try also the following, said to be that used on postage stamps: Gum dextrin, 2 parts; acetic acid, 1 part; water, 5 parts. Dissolve in a water bath, and add alcohol, 1 part.

To Clean and Polish Cows' Horns.

RASP the horn with a file, to bring it to a smooth, even surface; then scrape with glass, in the same manner as a shoemaker scrapes the soles of boots. This, if carefully done, will leave a fine, clean surface. Then rub with a piece of cloth and "electro-silicon;" wet to a paste with water. Then polish with a cloth and oxide of tin, wet with water to a paste. Sometimes the horn is rubbed down for a final polish with French polish, instead of the oxide of tin. Whiting and chalk in water is also used.



SARGENT'S TEST STAND FOR URINE ANALYSIS.

THIS compact and complete apparatus devised be Prof. E. H. Sargent, of Chicago, will be found a convenient and inexpensive device for the examination of urine, economizing time and labor; it is ready for use at any moment, and occupies the smallest space which could be used for the purpose.

It consists of a wooden stand, with nine holes for test tubes, eight glass-stoppered reagent bottles, two glass funnels (each having a rest at end of stand), two beaker glasses, brush, glass rod, pipette, nine test tubes, and a urinometer, with the proper reagents, litmus paper, etc., complete. A drawer slides behind the bottles for holding test paper, brush, etc.

A rack of pins on the back of the stand affords room for drying beakers and test tubes.

Price, complete with reagents, $5.

A New Insecticide.

THE aqueous or acetic acid infusion of the flowers of *Delphinium Ajacis* is used as an insectide. In consideration of its extreme cheapness and by its lack of odor, it is distinguished from other known agents. According to Benvenuti, the action of *Delphinium Ajacis* is as an excitant, rubefacient, astringent, and antizymotic. In many cases, this remedy shows a great resemblance to carbolic acid and with iodoform.—*Archiv der Pharmacie.*

Indelible Stamping Ink.

ACCORDING to Reissig, stamping-ink for marking or cancelling stamps, documents, etc., which cannot be entirely effaced, may be prepared by mixing 6 parts of finest lamp-black with 2 to 3 parts of ferric chloride and 16 parts of boiled linseed oil. When thoroughly mixed, the whole is diluted with

about one-eighth of its volume of boiled linseed oil. This ink should be used only with rubber-stamps, since metallic stamps would suffer. To avoid this drawback, the ferric chloride may be dissolved in absolute alcohol, an excess of reduced iron (more than enough to reduce the ferric chloride) be added, and the resulting ferrous chloride rapidly added to the boiled oil and lamp-black. Even should the black stain produced by the ink have been entirely removed, the iron absorbed by the paper may still be recognized by tests. —*Deutsch. Ind. Zeit.*

NOTE.—In our opinion, the nigrosin ink, of which we gave a formula on page 27 of our last year's volume, is equally, if not more, indelible on paper than the above ink. Of course, the nigrosin ink is not indelible on linen, because it does not deposit in the fibre, but remains on the surface, and the strong friction to which the linen, etc., is subjected in washing rubs it off. But it cannot be rubbed or washed off paper with any force short of injuring the paper itself.—ED. AM. DRUG.

A NEW POCKET BATTERY.

THE ELECTRO-MEDICAL BATTERY CO., of Kalamazoo, Mich., have lately placed on the market a very efficient battery at a cost of $10, which is worthy of attention. It consists of a neat, polished, wooden box 7x4x2 inches in size, and weighing about 16 ounces, in which is an ingenious form of Trouvé cell, and an arrangement for securing two grades of strength of an induced or Faradic current. The cell is a cylindrical hard-rubber box, one end of which being unscrewed is found to be attached to a rod of zinc, and the inside of the box is lined with carbon with a corrugated surface. To charge the cell it is about half-filled with water and one or two small spoonfuls of bisulphate of mercury are added. The top is then screwed on and the cell placed in position, the pins or trunnions at either end resting in notches in two strips of metal attached to the inside of the box. Rotation of the cell serves to agitate its contents when the current becomes feeble, and with a proper charge, the current will last an hour or more. Ingenious sponge-holders accompany the battery, as well as a rubber-stoppered vial holding enough of the mercurial salt to answer for several charges, and the necessary metallic cords for making connections. The contrivance for changing and interrupting the current is very simple and cannot possibly get out of order. Indeed, the entire apparatus is well-made and durable, and will furnish the means for applying the Faradic current in a compact and serviceable form. We have been very well pleased with a trial of the battery, and have no hesitation in recommending it in place of the bichromate of potash batteries on the ground of greater efficiency and portability, and a smaller cost.

To Stop Hiccough.

A CORRESPONDENT of the *Medical Record* recommends firm compression of the heaving ribs by both hands. In two cases where this was done the hiccough almost instantly ceased.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

Brandreth's Pills.—DEAR SIR: In your journal for November, p. 350, I notice two formulæ for Brandreth's pills, neither of which is correct. I inclose what I believe to be the true formula, and a most excellent pill it is:

℞ Ext. colocynth..... ʒi.
Aloes socotrinæ..... ʒ ij.
Gambogiæ ..... ʒ i.
Saponis castiliensis ..... ʒ ss.
Ol. menthæ pip .....gtt. ij.
" cinnamomi.....gtt. i.
Pulv. acaciæ,
Alcoholis.....āā q. s.
Ut ft. pil. No. lxxx.
S. Dose, 1 to 3, as directed.

I often prescribe two of these pills with one three-grain mass hydrarg. pill at late bed-time, and obtain an admirable effect. Very truly yours,

D. S. CLARK, M.D.

ROCKFORD, ILL.

No. 1,200.—**Oleomargarin** (New Orleans).

We are informed that the "Commercial Manufacturing Company" of New York—the chief producer of this article—consumes about 300,000 pounds or 136 tons *per week*, of beef-fat, in the manufacture of oleomargarin. The total amount of this product exported annually, at present rates, from New York, is estimated (in *Indust. Blätt.*, 20, 213), at eight million pounds.

A portion of the oleomargarin is converted into artificial butter already in New York; another portion goes to Holland, where it is converted by being mixed with milk and other ingredients and subsequent churning, into a mass exactly resembling butter. Great Britain apparently receives the product only in a finished condition, and packed exactly like genuine butter, either under the name *butter-fat*, *butterine*, or "*bosh*,"—the last-mentioned name is peculiarly elegant and expressive—or as genuine butter itself.

Another compound known as "butterine," and made largely in Chicago, consists of a mixture of butter and lard.

No. 1,201.—**Indelible Ink** (Several Readers).

In addition to the numerous formulæ which we have given in former issues, and which we need not for the present repeat, we will give the following:

Mix 2 parts of sulphuric acid with 14 parts of water and one part of honey, render the liquid blue (so as to be able to see what is written with it) by indigo solution, write upon the paper or linen with goose-quills, and heat the spot, when dry, with a hot flat-iron. The sulphuric acid then carbonizes the honey, and, superficially, also the paper and linen. If delicate fabrics are to be marked, they may first be treated, upon the place to be marked, with a saturated solution of alum and dried. This protects the fibre against the injurious effects of the acid.

For certain purposes, it may be useful to possess a paper which would betray tampering by any chemicals. Such paper can be prepared by coloring with ultramarine and chrome yellow in proper proportions, the resulting color being more or less deep-, or pale-green, according to the quantity of coloring matter used. Upon this paper any ink is indelible, for whether an acid or an alkali be used for attempting to remove it, either one of the component colors would be destroyed, and the tint of the spot be completely changed.

No. 1,202.—**Sinidor** (Ch. W. H.).

This name, which is probably meant to stand for *sine odore* (without odor), and would better be written "sinodor," is an antiseptic substance introduced some years ago. It is prepared by heating neutral acetate of magnesium with calcined magnesia, until the mixture has been converted into a mucilaginous mass. It consists of basic acetate of magnesium, with excess of magnesia, and may be separated from the latter, when diluted, by filtration.

Practically the same compound, though less pure, is obtained by mixing a solution of acetate of magnesium with some caustic alkali.

The compound has been recommended for the removal of bad odors and for preserving organic substances.

No. 1,203. — **Yellow Hydrochloric Acid** (see NEW REM., 1883, p. 361).

A correspondent writes that he has repeatedly traced the yellow color of commercial hydrochloric acid to contamination with organic matter. He does not mean to deny that iron may frequently be the cause of it, but he thinks that this is not always the cause, as seems to be assumed by the writer of the article mentioned. He quotes the instance of bottles of colorless hydrochloric acid which was absolutely free from iron, having become tinted by contact with organic substances, known to be free from iron; at least, no reaction for iron could be obtained in the colored acid.

In the *Chemical News* of Oct. 5th, Leroy W. McCay, of Princeton, referring to the same subject, states that he had examined a lot of such colored acid which was supposed to owe its tint to organic matter. It turned out that it contained a good deal of iron. This result, therefore, coincides with that obtained by the author of the note published in our December number.

It seems to us that probably both of the preceding statements are correct. Probably there is as much chance of an acid being colored by organic matter, as that iron may be the cause.

In a succeeding number of the *Chem. News* (October 19th), there is a further communication by Mr. W. B. Hart, of Manchester, who ascribes the yellow color to the presence of selenium. The source of this, which he actually found present, was no doubt the pyrites used in making sulphuric acid. As selenious acid it was carried into the chambers, and by means of the sulphuric acid into the salt-cake pot, and hence to the condenser along with the hydrochloric acid gas.

The same author points out that a colored hydrochloric acid, which is rendered colorless through the oxidizing action of chlorate of potassium, might erroneously be supposed to be contaminated only with organic matter. The process of oxidation will render the acid colorless even if selenium is present as impurity.

No. 1,204.—**Aniseed Cordial** ("Erie").

(See query 1,192 in last December number of NEW REMEDIES.)

We are informed that the makers of the best aniseed cordial always add a small quantity of fennel, which tempers the taste of the anise and makes it more agreeable. For every pound of aniseed—in case the cordial is made by distillation—about half a pound of fennel is said to be used. If made

from the oils, the oil of sweet fennel alone should be used, and the proportion of oils of anise and fennel—at the above-mentioned ratio of the crude drugs, and taking in consideration the average yield of oil—would be about 4 parts of the former to 3 parts of the latter. It seems to us, however, that a much smaller quantity would suffice, to judge from a rough trial we have made.

No. 1,205.—**Ginger-Beer (English)** ("Subscriber").

We do not know of any formula recognized as that of "English Ginger-Beer," but we select one from our files, which is said to be the recipe of an English manufacturer:

Green Ginger, bruised	24 oz.
Sugar	20 lbs.
Lemon Juice (fresh)	20 oz.
Honey	16 "
Water	18 gals.

Boil the Ginger for half an hour in 3 gallons of water, in a covered vessel. Then add the sugar, and stir until it is dissolved. Remove it from the fire, add the honey, the lemon-juice, and the remainder of the water, cover well and let it cool. When cold, mix it with the white of one egg, beaten up with a little water, add a small quantity of oil of lemon (or orange)—sufficient to suit the taste—and allow it to stand for three days in a moderately cool place. Then put into bottles.

No. 1,206.—**Matta** ("Retail").

This is a name applied some time ago, in Europe, to a mixture, manufactured by certain firms for the purpose of enabling grocers to systematically adulterate spices. It consisted, probably, of ground oil-cake, left after the expression of oil from certain seeds, mixed with the débris of wood, bark, and sand. It was colored in different tints, ready for use to mix with the different ground spices, as pepper, allspice, cinnamon, ginger, etc.

No. 1,207.—**Test of Absolute Alcohol** (G. E. S.).

There is probably no really absolute alcohol obtainable in the market. It can be obtained, entirely free from water, only with great difficulty, and with great loss of time and material. As an alcohol of not less than about 99.5 to 99.7 per cent answers, practically, the same purposes, commercial usage accepts this strength of alcohol as "absolute."

The fact that an alcohol is "absolute" may be ascertained in several ways. Either the alcohol may be agitated with anhydrous sulphate of copper; if of proper strength this salt will remain white; if it contains water, the salt will turn bluish or blue. Or, the alcohol may be mixed with an equal volume of pure benzol; if anhydrous, the mixture will be clear. Finally, it is recommended to drop into the alcohol a piece of anhydrous baryta, which will remain unchanged if water is absent, but otherwise will fall to powder.

No. 1,208.—**Occurrence of Alcohol in Nature** (M. M.).

It is quite true that alcohol occurs in nature. Müntz, who made extensive researches on this subject, found it in spring, river, sea, and rain water; also in snow. At least all these waters contain a substance which is more volatile than water, and when treated with iodine and carbonate of sodium, yields iodoform just like alcohol. Only some very pure spring waters gave negative tests. By comparisons with very high dilutions of alcohol of known strength, it was ascertained that the water of the Seine and rain water contained about 1 gramme of alcohol in one cubic meter (35.3 cubic feet). Snow and cold rain water appeared to contain somewhat more; sea water, however, did not vary much from river water. Since alcohol exists in sea water, we must assume it to be present also as vapor in the air. The extensive occurrence of alcohol in nature is easily explained. The surface of the earth and the sea water contains many organic substances which are constantly undergoing a process of decomposition, of which process alcohol is one of the products. If this is so it must also exist in the soil, and experiment has actually demonstrated this.

No. 1,209.—**To Prevent Show-Windows Sweating in Winter.** (U. Co.)

We have lately read of an apparently ingenious method of accomplishing this. Namely, to put double panes of glass in the window-frame. The outer pane is to be puttied with the greatest care, so as to completely keep out the air. The inner pane may be so adjusted that it can easily be taken out at any time for being cleaned, and replaced without difficulty. This idea is, of course, an old one. It is a common custom in Europe to put an extra set of windows outside the ordinary ones, in winter-time. The temperature in the interval between the windows is generally such that the inner panes are not cold enough to condense the aqueous vapor in the room. Of course it is necessary that the outer windows be perfectly tight.

No. 1,210.—**Assay for Ergot Preparations** ("Mat. Med.").

It is to be regretted that Prof. Dragendorff did not include ergot among the active drugs treated of in his well-known "Chemische Werthbestimmung stark-wirkender Droguen." There is very little, or scarcely any, work recorded on this subject; but we are enabled partly to supply this defect by a communication received from Mr. Byron F. McIntyre (of McIntyre & Embury, 99 North Moore street, New York) who has given this subject close attention.

One of the manufactures of this firm are the well-known *Dialysates of alkaloidal drugs*, which are intended to furnish standardized liquid preparations of the more important drugs, as free from inert substances as possible, and prepared by dialysis. To preserve a uniform standard, these dialysates are assayed. In some cases, this assay is a comparatively simple matter, and the methods are well-known. In other cases, however, notably in that of ergot, new methods had to be devised. The following note, specially referring to the *ergot dialysate*, but, no doubt, also applicable to other liquid preparations of ergot—with necessary modifications—will therefore be a welcome reply to the query.

Alkaloidal Test for Ergot Dialysate.—The potassio-cadmic iodide is an easily decomposed reagent, and not very satisfactory for quick and pronounced results, as the double salt formed is prone to speedy decomposition, so that at the end of one hour, after a full equivalent of test-solution has been added, no further precipitation can be detected. But if tested again after two or three hours, the solution shows again an alkaloidal reaction, showing that the alkaloid has been partly disengaged from the precipitate.

This test-solution, as well as the potassio-mercuric iodide (or Mayer's solution), may be used as confirmatory tests, but are not suitable, apparently, as conclusive reagents. On the other hand, the potassio-bismuthic iodide has proved a very accurate and satisfactory test, giving a dense, insoluble, quickly subsiding precipitate. It is prepared as follows;

Solution No. 1.—A mixture of 80 *cc.* of hydrochloric acid (containing 19.64 gm. of absolute HCl), and 30 *cc.* of distilled water are added to 4.957 gm. of hydrated oxide of bismuth. When dissolved, the liquid is made up to 500 *cc.* with distilled water.

Solution No. 2.—20 gm. of pure iodide of potassium are dissolved in 400 *cc.* of distilled water, and to this are added 100 *cc.* of the volumetric solution of soda, U. S. P., 1880, making half a liter.

Solution No. 3.—Distilled water, containing 5 per cent of pure iodide of potassium.

When applying the test, the dialysate must always be of the same degree of acidity, and diluted with the specified volume (see below) of Solution No. 3. To a definite volume of Solution No. 2, a like volume of Solution No. 1 must be added, with vigorous shaking. This test-solution must be mixed in perfectly clean beakers, and must be used within ten minutes after being prepared.

A second portion of the test-solution cannot be prepared in the same beaker, until it has been carefully cleaned with distilled water.

After adding the test-solution to the dialysate, the mixture is gently agitated, and put aside for four hours before making a test to determine whether all of the alkaloid has been precipitated.

The standard test itself is thus performed: 10 cubic centimeters of the dialysate are diluted with 80 *cc.* of solution No. 3 (containing 5 per cent of iodide of potassium). To this mixture add 33 *cc.* of test-solution of potassio-bismuthic iodide (prepared by mixing equal volumes of Solutions No. 1 and 2), and shake gently. Then set aside for four hours, remove a little of the clear liquid over the precipitate with a pipette, and add a little of the test-solution. This should not produce any further precipitate.

At the end of another four hours, however, when tested again with 30 *cc.* of the solution, the supernatant liquid will show a further precipitation.

To summarize—10 volumes of the dialysate of ergot should require not less than 30, nor more than 33 volumes of the solution of potassio-bismuthic iodide to precipitate all the alkaloidal substances in form of a heavy brick-red precipitate.

It should be added that, so far as now known, all active constituents of ergot, including sclerotic acid, are precipitated by the above reagent.

This process, therefore, appears to be of value in testing the alkaloidal strength of any liquid preparation of ergot, known to be free from any other substance (not belonging to ergot) that will produce similar precipitates.

The dialysate of ergot represents 1 part of the drug in 2 parts of liquid. The test will have to be re-adjusted when applied to other preparations.

No. 1,211.—**Prescription Difficulty** ("Precipitate").

This correspondent writes: I have been unable to obtain a clear solution in compounding the inclosed prescription, which is similar to the one printed in the November number of NEW REMEDIES (p. 351):

℞ Ammonii Bromidi	ʒiv.
Quininæ (alkal.)	ʒi.
Ferri Pyrophosphatis	ʒiv.
Acidi Phosphorici dil.,	
Syrupi Aurantii,	
Aquæ	āā f. ℥ij.

My acid answers the U. S. tests, and I have used citrate of ammonium, manipulating as suggested by Mr. Baker; but so far have failed to prevent a precipitate or dissolve it after it is formed."

When we printed the note referred to by our correspondent, we intended to accompany the same by a note of our own, showing that the difficulty was of a different nature. By an oversight this was omitted, and we are glad of having an early opportunity to put this matter right.

Orthophosphoric (or the officinal phosphoric acid) is known to be free

from metaphosphoric or pyrophosphoric acid, when it remains clear on being mixed with tincture of iron. Therefore when tincture of iron is to be used in a mixture containing phosphoric acid, only the officinal, orthophosphoric acid should be used. In the case of a solution of pyrophosphate of iron (rendered soluble by the citrate of an alkali), however, the case is just the reverse. If orthophosphoric acid be added to this solution, a gelatinous precipitate is produced which it requires a considerable excess of the acid to dissolve. At the same time, this solution is accompanied by a total loss of every trace of the characteristic green tint of the solution; in fact, the solution is colorless. But, if metaphosphoric acid, or a solution of glacial phosphoric acid be added to a solution of the pyrophosphate, no precipitate is produced, and the addition even of an excess of the acid does not change the color. This shows that the metaphosphoric acid exerts but little, if any, influence upon the constitution of the pyrophosphate.

Hence, when pyrophosphate of iron occurs in a mixture to which phosphoric acid is to be added, an aqueous solution of the glacial acid must be used. It is true, the glacial acid, as it usually occurs in the market, is not pure, containing from 10 to 30 per cent of phosphate of sodium, which is added to permit its being cast in form of sticks. Nevertheless, the presence of this impurity is only harmful to this extent that it diminishes the percentage of free acid present. The former U. S. Pharmacopœia directed diluted phosphoric acid to be made either from phosphorus itself, or from glacial phosphoric acid (1 troy ounce to make 12¼ fluid ounces), which was to be converted into orthophosphoric acid by being heated with nitric acid. Of course, when we speak above of an aqueous solution of glacial phosphoric acid, we mean that the glacial acid should be at once dissolved in water, *without* being first treated with nitric acid, which would destroy the metaphosphoric acid. If any one cannot readily obtain the commercial glacial acid, or would prefer to have metaphosphoric acid free from foreign impurities, this may be made by burning small pieces of phosphorus over a plate in a confined space of air. The white, snow-like phosphorus pentoxide thus formed, when allowed gradually to absorb water from the air, or when dissolved in cold water so as not to raise the temperature much, furnishes a solution of metaphosphoric acid. But if the solution is heated, or if the acid be in solution for a long time, the metaphosphoric is converted into the orthophosphoric acid.

The bromide of ammonium in the above mixture does not appear to introduce a special difficulty, though it is quite likely that hydrobromate of quinine and phosphate of sodium are formed during the solution, and the hydrobromate of quinine is dissolved by the phosphoric acid. With the sample of glacial acid in our possession, it required a little over 2 fl. oz. of a solution containing 1 ℥ in 12 fl. oz. to render the above mixture clear.

The pyrophosphate of iron should be dissolved in 2 fl. oz. of boiling water, and the solution cooled. The quinine should be dissolved in a mortar, in 2 fl. oz. of the solution of glacial phosphoric acid, then the bromide of ammonium added, and the solution of the pyrophosphate, and finally, if required, a little more glacial acid, to render the mixture clear.

No. 1,212.—**Best Form of Administering Codeine** (J. O. W.).

Since Merck of Darmstadt has found that phosphoric acid forms a very soluble and stable salt with codeine, there can be no doubt that the phosphate is the most eligible salt to use. It crystallizes in small four-sided columns, is white, has a bitterish taste, and is soluble in four parts of water. It is very suitable for hypodermic injections. Codeine acts like morphine, only in a less energetic manner, and does not stupefy so much.

No. 1,213.—**Parchment-Paper** (F.).

To make good parchment paper, it is, above all, necessary to select good, unsized paper, free from foreign filling, made of pure vegetable pulp, and so dense that no pin-holes can be observed in it when it is held up to the light. It should be made of long-fibered material, if possible. Though we have never tried Japanese paper, we should imagine that this would yield the toughest and strongest parchment paper, even though the very finest and lightest qualities (free from pin-holes) of Japanese paper were selected.

It is true, there is at present no depot of Japanese paper in this country, so far as we know. Small lots are occasionally imported to order. If any is needed, there is no difficulty in obtaining it through one of the Japanese importing firms established in New York, Boston, and other large cities.

If parchment paper can be made from an endless roll, the resulting product will be much nicer, because it is kept on a gentle stretch the whole time that it passes the different parts of the machine, and is finally ironed and calendered. If the sheets are dipped singly, some contrivance must be adopted to keep the paper on a stretch while drying, as it will otherwise curl and twist, and will become very brittle, particularly at the ridges of the curls.

When made on the large scale, paper wound on a roll is drawn first through sulphuric acid, prepared by mixing 2 volumes of concentrated sulphuric acid with 1 volume of water, and allowing to cool (according to others, the proportions are 1,000 parts of sulphuric acid to 125 [or more] parts of water)—where it remains from 5 to 30 seconds, according to the thickness. It is then immediately drawn through water, next through dilute ammonia, then again through plenty of water, and finally passed between heated rollers, where it is dried.

In place of sulphuric acid, phosphoric acid has been employed with success; also a syrupy solution of chloride of zinc, free from excess of acid and heated to between 50° and 100° C.

It has been recommended to saturate the paper with alum before drawing it through the sulphuric acid. This has been found to render it less liable to be made rotten by the acid. The latter acts more on the surface and the paper loses neither its flexibility nor its transparency.

During the treatment with acid, the surface of the paper is converted into a sticky form of dextrin. It is, therefore, easy to prepare thick pasteboards by piling a number of layers on top of each other.

Artificial parchment or parchment paper has also been called *papyrin* and *membranoid*.

No. 1,214.—**Eau de Javelle, etc.** (M. E.)

The term *Eau de Javelle* is, properly speaking, applied only to a solution of chlorinated potassa (the potash salt corresponding to chloride of lime). In this country, however, it is very generally taken as a synonym for Solution of Chlorinated Soda or *Labarraque's Solution*.

Eau de Javelle is named after the place where it was first prepared, namely, the Mill of Javelle (moulin de Javelle), between Paris and St. Cloud. Sometimes it is spelled Eau de Javel, and it has been supposed to be named after the inventor.

Labarraque was a pharmacist of Paris, who brought the solution named after him into vogue during the cholera of 1832.

There are some other bleaching solutions, likewise going under special names, viz.

Wilson's Bleaching Liquid; this is a solution of chlorinated alumina.

Ramsay's or Grouvelle's Bleaching Liquid; a solution of chlorinated magnesia.

Both of the above are prepared from chlorinated lime by treating it with sulphate of aluminium or sulphate of magnesium, respectively.

In certain cases, particularly in bleaching delicate fabrics like silk, the last-named bleaching liquid is greatly preferable, as it is devoid of the caustic alkaline effect, so common with the potash or soda compound.

Varrentrapp's Bleaching Liquid, is chlorinated zinc also prepared from chlorinated lime and sulphate of zinc.

No. 1,215.—**Birch Beer** (Ohio).

The birch tree contains a colorless acid and sweet sap which may be obtained by boring holes about one or two inches deep into the trunk during spring, and putting tubes into the holes, with cups at the end. It is said that 50 white birch-trees, of about 18 inches diameter, yield in four days about 350 pounds of sap. This sap contains, according to Boussingault (Rur. Econ. p. 65), sugar, extractive matter, acetate (?) of calcium, aluminium (?), and potassium. The same authority says that the presence of acetate aluminium may appear extraordinary for the reason that alumina has not yet been found among the constituents of the ash of the tree.

A very excellent sparkling beer or wine can be made from this sap by adding to it from 8 to 10 per cent of its weight of sugar and 0.2 to 0.3 per cent of tartaric acid. According to another authority, the best product is made by adding to 100 pounds of the sap about 6 oz. of tartaric acid and 8 to 10 (or if a stronger product is wanted, 16 to 24) pounds of sugar and 3 oz. of a strong almond milk. The mixture is fermented in the usual manner, put in bottles with a little more sugar, and securely sealed.

This beverage is much used in the North-Russian provinces Courland and Livonia, where large birch-forests exist.

No. 1,216.—**Elder Berries.**—In what locality of the United States or Canada is elder (*Sambucus canadensis*) found in sufficient quantity to make the collection of elder-berries profitable? An answer to this query will be of interest to several of our correspondents.

Acid to Write on Glass.
Bleaching Ivory and Bone.

THESE queries, numbered repectively 1,168 and 1,176 in our number for October of last year, have brought a communication from B. Newham & Co., of Castle Hill, Sheffield, England, in which it is suggested that the querists probably had in mind two of their preparations, viz.: "Vitrographine," and "Ivory Bleach." The former can be used for ornamenting, matting, frosting, roughing, writing, or drawing upon glass, and cannot be washed off or removed by any process at present known. Its applicability to many uses is very great, and for druggists, especially, it will serve for labelling acid-bottles, marking the tare on bottles and jars, graduating measures and bottles, etc. It costs 6*d.* per ounce, or 6*s.* per pound.

The "Ivory Bleach" whitens animal and most, if not all, vegetable tissues without injury to the fabric, and is especially useful for bones, bristles, feathers, hair, ivory, leather, silk, sponge, whalebone, etc. Articles once

bleached retain their whiteness, and the whole substance is bleached, as well as the surface. The price is 6*s.* 6*d.* per gallon, in 12 gallons carboys, or 10*s.* per gallon in smaller quantities.

Answers in Exchanges.

SCIENTIFIC AMERICAN.

Nickel Plating, if well done on solid metal, ought not to rust. If on cast iron which is porous, the nickel will be also porous, if not thickly plated. You may oil the articles with linseed-oil and heat to a little above the temperature of boiling water. Then polish with whiting, chalk, or electro-silicon. The oil fills the pores and prevents future rust.

A Very Black and Indelible Drawing Ink may be made by dissolving shellac in a hot-water solution of borax, and rubbing up in this solution a fine quality of India ink; this may be made by rubbing down a genuine India ink with good black ink until it flows easily from the pen.

For Repairing Mirrors accidentally scratched, clean the bare portion of the glass by rubbing it gently with fine cotton, taking care to remove any trace of dust and grease. If this cleaning be not done very carefully, defects will appear around the place repaired. With the point of your knife, cut upon the back of another looking-glass around a portion of the silvering of the required form, but a little larger. Upon it place a small drop of mercury; a drop the size of a pin's head will be sufficient for a surface equal to the size of the nail. The mercury spreads immediately, penetrates the amalgam to where it was cut off with the knife, and the required piece may now be lifted and removed to the place to be repaired. This is the most difficult part of the operation. Then press lightly the renewed portion with cotton, and the glass presents the same appearance as when new.

BIBLIOGRAPHY.

CHEMISTRY: INORGANIC AND ORGANIC, WITH EXPERIMENTS. By CHARLES LONDON BLOXAM, Professor of Chemistry in King's College, etc. From the fifth and revised English edition. Pp. 700, 8vo. With 292 illustrations. Philadelphia: Henry C. Lea's Son & Co., 1883; cloth $3.75, leather $4.75.

BLOXAM'S hand-book is so well and favorably known that it does not require a formal introduction. Our task of reviewing is made comparatively easy by the fact that we have used the work ourselves very frequently for reference, or as the basis for explaining chemical facts to others, and so far as the scope of the work extends, it has always served our purpose well.

One of the particular merits of Bloxam's work is the minuteness and fulness with which the more important elementary substances and their compounds are treated. The enumeration of dry facts is judiciously relieved at every step by the introduction of interesting experiments, or the explanation of the practical use of the substance in question. In fact, the application of chemistry to the useful arts forms a prominent feature of the work. In the section of organic chemistry, the author wisely restricted himself to the introduction of the main groups under which organic substances of practical usefulness can be divided.

We might express the wish that the peculiar feature of the English edition of using English weights and measures and Fahrenheit degrees of temperature exclusively might have been altered in the American edition so as to give the metric terms and centigrade scale at least in brackets. And we recommend that this be done at a future edition.

The publishers have done full justice to the work, which we are sure will continue to have a large circulation.

THE MEDICAL STUDENT'S MANUAL OF CHEMISTRY. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry and Toxicology in the University of of Buffalo, and in the University of Vermont, etc. 8vo. New York: William Wood & Co., 1883.

As we might have reasonably expected, from our examination of previous works of the same author, the subject of the present volume has been handled with circumspection and care. The first or introductory part contains explanations of general laws, nomenclature, etc. The second part contains the chemistry of the elements. In treating this subject, the author departs from the usually adopted division into metals and metalloids, in consideration of the fact that, in certain cases, it is now difficult to decide whether an element should be classed with the one or the other. He substitutes a method of division of his own, which is based upon the chemical properties of the oxides of the elements, and upon their valence. We acknowledge the author's right, as a teacher, to classify his subject in any matter comformable to his method of thinking and appearing to him the best under which to group facts. Yet we do not think that this particular system of division will fully escape the fault for which the former was discarded. And for that matter, we yet cannot conceive any system which would fit the facts—so far as they are known—completely.

The author's division is as follows:

I. "Typical" Elements: *H* and *O*.

II. Elements whose oxides unite with water to form acids, never to form bases. Which do not form oxysalts.

This class contains seven groups (including the Carbon Group).

III. Elements whose oxides unite with water, some to form bases, others to form acids. Which form oxysalts. (Nine groups.)

IV. Elements whose oxides unite with water to form bases, never to form acids. Which form oxysalts.

As in a former work of the author, so in the present one, the organic substances are all treated of under Carbon, without interrupting the classification above given, which appears to us not as convenient as the usual method of treating them separately, though it may be logically correct.

Having thus briefly stated some of the points in which we do not quite agree with the author, we now turn to to the text itself, and, having read over those portions which interest us specially, we are fully satisfied that the work will be, in the hands of the student, a useful and safe guide for study and work. The portion allotted to inorganic and organic chemistry proper is almost too full for a student's manual; but this is a feature more readily corrected than barrenness; and while one mind would decide a certain chapter superfluous, another would miss its absence.

A very useful part of the work is the last, containing a chapter on Chemical Technics, including reagents, the preparation of apparatus, and instructions in chemical manipulation. This is followed by several schemes of systematic analysis.

THE PHYSIOLOGICAL FACTOR IN DIAGNOSIS: A Work for Young Practitioners. By J. MILNE FOTHERGILL, M.D. New York: William Wood & Co., 1883. Pp. 256. 8vo.

IT is hardly to be supposed that the "young practitioners" will be the only ones who will read this book. To many older ones who, weary of dry clinical details written by men whose claim to authority gains nothing from their style of composition, anything by Dr. Fothergill serves as a feast, and this latest work will prove no exception. Its chapters relate to the history of the family and individual; external appearance; the tongue; respiration; pulse; alimentary canal; urine; reproductive organs; temperature; motor and sensory disorders; patient's sensations; the patient in his bed-room, and end with a concluding chapter. It abounds with good sense from first to last.

ANATOMY, DESCRIPTIVE AND SURGICAL By HENRY GRAY, F.R.S., etc., with an Introduction on General Anatomy and Development by T. HOLMES, M.A. Cantab., etc. New American, from the Tenth English Edition, to which is Added Landmarks, Medical and Surgical, by Luther Holden, F.R.C.S., with additions by William Keen, M.D. Philadelphia: Henry C. Lea's Son & Co., 1883.

"GRAY'S ANATOMY" needs no longer to be recommended to American students; for every first year's student buys it as a matter of course, and finds in it all that he can wish for as an anatomical guide in the class-room, dissecting-room, or hospital.

Bound in half-Russia, it is a desirable and handsome volume for the shelf or table.

THE ROLLER BANDAGE. By WILLIAM BARTON HOPKINS, M.D., Surgeon to the Out-Department of Pennsylvania, Episcopal, and University Hospitals, etc. Seventy-three Illustrations. Philadelphia: J. B. Lippincott & Co., 1883. Pp. 95. Sm. 8vo. $1.25.

THE essential feature of this book is its illustrations. Instead of making use of the antique pictures that have so long done service in hand-books upon this subject, and which are quite as often faulty as correct, the artist has made use of photographs from actual practice as a basis for drawings which are reproduced by a photo-relief process, and are, as a rule, remarkably life-like. The variety of illustration renders extended descriptions less necessary. The text, however, is sufficiently detailed, and the book, as a whole, is far superior to anything of its kind that we have yet seen.

CHEMISTRY, GENERAL, MEDICAL, AND PHARMACEUTICAL; Including the Chemistry of the U. S. Pharmacopœia. A Manual on the General Principles of the Science, and their Applications in Medicine and Pharmacy. By JOHN ATTFIELD, F.R.S., etc. Tenth Edition, Specially Revised by the Author for America. 8vo. Philadelphia: Henry C. Lea's Son & Co., 1883.

IT will scarcely be necessary, with reference to Prof. Attfield's well-known work, to say more than that this new edition has been specially written with a view to embrace the chemistry of the new U. S. Pharmacopœia, which will be of special value to the students in our pharmaceutical Colleges. It contains also nearly everything relating to the chemistry of the British and Indian Pharmacopœias. The new edition has been printed with beautiful, clear type, on excellent paper, and may serve as a specimen of what American publishers can produce.

WORK-SHOP RECEIPTS (Second Series). By ROBERT HALDANE. London and New York: E. & F. N. Spon, pp. 485, 8vo. $2.00.

THIS is a very complete handy book of information which is likely to be of service to apothecaries as well as to other artisans. For example, it has articles upon Acidimetry, Alkalimetry, Alcohol, Alkaloids, Bitters, Cements, Cleansing, Confectionery, Essences, Extracts, Glycerin, Ink, Iodine, Iodoform, Magnesia, Pigments, Paint, Preserving, and many other topics, some covering many pages and including formulas and processes. Illustrations

are used when needed to make the text clearly understood. The book will not only supply knowledge that may often be essential, but will also prove interesting reading in leisure hours, for those who have any taste for such literature.

THE PHYSICIAN'S VISITING LIST for 1884. (Thirty third year.) Philadelphia: P. Blakiston, Son & Co.

THIS is one book which it is safe to say every physician must have if he has any regard for accurate business records, and which pharmacists may well keep in stock. It is published in various styles and sizes, varying in price from $1.00 to $3.00, and is arranged to meet the wants of a majority of practitioners.

THE DRUGGISTS' POCKET PRICE-BOOK; for Retailers, Jobbers, Manufacturers, and Travelling Salesmen. Showing the Exact Location of Every Article in the Store, Cost and Selling Price, Quotations, Discounts, etc. Third Edition. Entirely Rewritten, Rearranged, and Improved. By BENJ. LILLARD. New York: J. H. Vail & Co., 1883. Pp. 627; $3.00.

THIS is a very great improvement upon the original work by Nelson, and leaves very little to be desired. It includes titles of pretty much everything that is likely to be handled in the drug trade, and has blank spaces for articles which may eventually be added. The method for indicating the location, in the store, of the articles enumerated is simple, and cannot fail to be of great service. Without some such aid to the memory, the retail dealer is apt to lose sight of stock already at hand, and purchase new supplies far in excess of his needs. By using a book of this kind, there will be no necessity for marking cost or retail price on the articles themselves. And the facility with which an inventory can be made and kept by its use renders it almost indispensable in every store, no matter how small its stock may be.

The compilation has been done with apparent care, and we fail to note errors or omissions of importance. We are sure that no one connected with the drug trade who has occasion to refer to names or prices can afford to be without this pocket-book.

AUS DER GESCHICHTE DER GIFTE. Vortrag, gehalten im Rathhaussale zu Zürich, den 18. Januar 1883, von PROF. EDUARD SCHÆR. 8vo. Basel, 1883.

(No. 7 of volume vii. of: Oeffentliche Vorträge, gehalten in der Schweiz.)

AN interesting review of the history of poisonous substances used in ancient and mediæval times for criminal, judicial, superstitious, and other purposes.

WHOLESALE PRICE-LIST OF DRUGS, Chemicals, Pharmaceutical Preparations, Essential Oils, Druggists' Articles, etc., etc. LEHN & FINK, Importers, Exporters, etc., 128 William street, New York.

THIS new price-list of Messrs. Lehn & Fink will be found to contain a very complete and well-arranged list of the drugs and preparations in use in this country. The new drugs lately introduced, and also the rarer active principles, usually imported only on special demand, will be found quoted.

UNITED STATES SALARY LIST AND THE CIVIL SERVICE LAW: Rules and Regulations, with Specimen-Examination Questions in the Custom House, Post Office, and Classified Departmental Service. Prepared under the Direction of Henry N. Copp, Attorney and Counselor at Law. Washington, D. C., 1883; pp. 143, 8vo.

THE information contained in this pamphlet has not heretofore been available for most people, and its publication in this form deserves to receive very general encouragement.

ASSOCIATION AND COLLEGE NOTES.

College of Pharmacy of the City of New York.—The present session of this College is the most prosperous since its existence. Although the requirements for graduation have been gradually raised from year to year, the attendance on the course is in excess of any preceding it. The Junior class numbers 186, and the Senior 128 members. Voluntary laboratory students number about 70; this is, of course, exclusive of the regular obligatory instruction which every student must receive during at least thirteen days of the session.

The organization of the obligatory chemical and pharmaceutical laboratory, with the beginning of this session, has taught the Board of Trustees, as well as the Professor, many valuable lessons, which will be utilized in improving the course at every step.

Steps have already been taken to combine with the current lecture course in analysis a practical course in pharmaceutical manipulations—which had, at first, been intended to be postponed until next session.

It is in contemplation to inaugurate a system of preliminary examinations for the ensuing year. This has been long proposed, but, for various reasons, it has been found impossible, up to the present time, to introduce it. In this matter, much depends upon the proprietors of pharmacies. When selecting apprentices, or accepting the services of beginners, they should, *whenever possible*, be more discriminating, regarding the qualifications of applicants. Though each one is a law unto himself, and no State law can here enforce a standard of qualifications for entering this profession, the advantage of attracting a well-educated class of young men is self-evident. We are quite aware of the difficulties in the way, and the comparatively distant prospects of material benefit for the young aspirants. Nevertheless, an improvement is necessary, and a discrimination in the admission of applicants to the College of Pharmacy, depending upon their previous education, is imperatively demanded. It cannot fail to benefit both the reputation of the College and the members of the profession.

Pennsylvania.—A meeting of Philadelphia druggists was held on the 30th of October, at which the following resolutions were adopted, and an effort is being made to enlist the cooperation of all retail dealers in that city in support:

Resolved 1. That we, the retail druggists of Philadelphia, hereby agree that unless the manufacturers, jobbers, or wholesale dealers in Proprietary or Patent Medicines, discontinue the sale of said articles to any one known to retail such, or other articles, at less than regular retail prices, we will not buy any goods whatsoever from such manufacturers, jobbers, or wholesale dealers.

Resolved 2. That we pledge ourselves to notify the Trade Association of Philadelphia Druggists of any authentic case that may come to our notice of such cutting of prices, and that we hereby request that Association to appoint a committee to investigate such charges, and if proven, to notify the wholesale trade of such parties so offending, and call their attention to the first resolution.

Resolved 3. That this action will take effect on and after January 1st, 1884.

Colorado.—The Denver Board of Aldermen have levied a uniform license upon all who retail malt or spirituous liquors. A committee of that body found from 50 to 75 drug stores in the city selling whiskey and doing almost nothing to support the local government. They thereupon recommended a license be exacted, and it was done. The apothecaries presented a petition, numerously signed, asking that the ordinance be amended so as to apply to those only who sell the vile nostrum "as a beverage." Considering the right of people to petition, the City Council took into consideration how easy it is to obtain names for any purpose so that the signers are not called upon to put their hands in their pockets, it being easier to put one's name to a petition than to discuss the merits of the business with the solicitor, and rendered the following opinion: "If whiskey selling is profitable, then pay the license. If it is not, then let it alone. A profession that can put a penny's worth of potassium in a phial, fill it with rain water, and sell it for fifty or seventy-five cents, can well afford to help support the government."—*Weekly Drug News.*

Missouri.—The State Pharaceutical Association held its fifth annual meeting in the Board of Public School Directors' room, Polytechnic Building, St. Louis, Mo., commencing Tuesday, October 23d, and lasting till the Thursday following.

After President M. W. Alexander had delivered an address and a new constitution had been adopted, officers for the ensuing term were elected, as follows:

President, O. A. Wall, St. Louis; *Vice-Presidents*, I., H. C. Churchill, Windsor; II., J. W. Llewellyn, Mexico; III., J. A. Gallagher, Kansas City; *Permanent Secretary*, G. H. Chas. Klie, St. Louis; *Local Secretary*, C. M. Kelly, Brownsville; *Treasurer*, Prof. J. M. Good, Brownsville.

A motion was adopted, that in future the newly-elected officers are not to be installed until immediately previous to adjournment of the meeting at which they have been elected. The name "executive committee" wherever it occurs in the constitution, was changed to "council." The following gentlemen were elected members of the council: F. W. Sennewald, St. Louis; D. T. Wooldridge, Boonville; M. W. Alexander, St. Louis; George Ude, St. Louis; and Dr. A. R. Edmunds, Miami.

Committee on Trade Interests, J. T. Plunkett, Brunswick; A. W. Sinclair, St. Louis; and H. C. Arnold, Kansas City.

Committee on Papers and Queries, Prof. Oscar Oldberg, St. Louis; W. T. Ford, Kansas City; and Dr. H. E. Ahlbrandt, St. Louis.

Committee on Legislation, M. W. Alexander, St. Louis; D. T. Wooldridge, Boonville; and H. M. Petit, Carrolton.

Prof. J. M. Good read a paper on "Articles Dismissed from the Pharmacopœia."

Prof. O. A. Wall read two papers. One, "A few Words on Spurious Star Anise;" the other, "A few Words on Spurious Male Fern."

Prof. C. O. Curtman's paper treated of the "Artificial Production of Cold and Ice."

Prof. Oscar Oldberg read a paper on "The Importance of the Vegetable Materia Medica."

This was followed by the reading of a paper on "Syrup of Orange Peel," from Mr. F. W. Sennewald, and one on "Kairin," by G. H. Chas. Klie.

The Association gained nearly one hundred new members, mostly from St. Louis, at this meeting. After installation of new officers, the Association adjourned, to meet at Brownsville on the second Tuesday in June, 3 P.M., 1884.

Illinois.—The State Pharmaceutical Association, at its meeting in Springfield, on the 9th and 10th of October, elected the following officers and committees:

President, H. Le Caron, Braidwood; *Vice-Presidents*, H. W. C. Martin, Chicago; R. N. Dodds, Springfield; F. A. Stevens, Newton; *Secretary*, T. H. Patterson, Chicago; *Treasurer*, M. Williams, Taylorville; *Executive Committee*, W. P. Boyd, Arcola; A. A. Brown, Sterling; H. H. Green, Bloomington. For *State Board of Pharmacy*, A. W. H. Reen, Peoria; H. Schroeder, Quincy; A. G. Vogeler, Chicago.

The following committees were appointed: *Pharmacy and Queries:* A. G. Vogeler, Chicago; H. Smith, Decatur; C. S. Hollberg, Chicago. *Legislation:* G. P. Engelhard, Chicago; C. W. Day, Allendale; H. Schroeder, Quincy. *Trade Interests:* W. W. Marmon, Bloomington; J. D. Backard, Lexington; C. McDaniel, Saybrook. *Drug Adulterations:* F. C. Bourscheidt, Peoria; C. H. Grube, Robinson; E. J. Blair, Springfield. *Necrology:* R. H. Cowdry, Chicago; J. C. Bodenschatz, Lemont; W. W. Pond, Ipava. *Progress of Pharmacy:* A. E. Ebert, Chicago. *Membership:* T. H. Patterson, Chicago. *Delegates to Amer. Pharm., and Nat. Retail Drug Associations:* A. E. Ebert, Chicago; H. Biroth, Chicago; W. P. Boyd, Arcola; A. P. Cunningham, Champaign; J. J. Schubert, Kankakee.

The next meeting will be held at Bloomington, on the 30th of September, 1884, Mr. J. E. Espey acting as Local Secretary. The Association has 742 members, and its income, last year, was $781.

New Hampshire.—The Board of Pharmacy, which met at Concord, Oct. 9th, consists of Messrs. C. A. Tufts, Dover; E. H. Currier, Manchester; Dr. C. T. Hildreth, Suncook; and G. F. Underhill.

Four out of six candidates examined were registered, and two persons were registered under the five-years clause of the Pharmacy act.

The tenth annual meeting of the State Pharmaceutical Association was also held on the 9th of November and elected the following officers and committees: *President*, Frank H. Chaplin, Franklin Falls; *Vice-Presidents*, Jas. O. Burbank, Manchester; Stephen F. Sanderson, Rochester; *Secretary*, George F. Underhill, Concord; *Treasurer*, Henry B. Foster, Concord; *Auditor*, A. Perley Fitch, Concord; *Reporter on Progress of Pharmacy*, Parker I. Noyes, Lancaster; *Executive Committee*, Robert C. Dickey, Hillsboro; George L. Brown, Concord; George F. Underhill, Concord; *Delegates to A. P. A.*, Chas. A. Tufts, Dover; Elias S. Russell, Nashua; Lewis K. Mead, Manchester; James O. Burbank, Manchester; Frank A. Chaplin, Franklin Falls. *Alternates*, Chas. T. Newman, Manchester; George F. Underhill, Concord; Frank A. James, Manchester; Chas. A. Merrill, Exeter; Edward A. Brockway, Franklin. *To Maine P. A.*, F. L. Banfield, Wolfborough; Frank J. Philbrick, Portsmouth. *To Mass. P. A.*, George Moore, Great Falls; Stephen F. Sanderson, Rochester. *To Vt. P., A.*, L. B. Downing, Hanover; H. P. Kendrick, Lebanon. *To R. I. Ph. Assoc.*, Edward A. Brockway, Franklin; Chas. H. Martin, Concord.

The next meeting will be held at Lancaster.

Delaware.—The State Pharmacy law contains the following clause:

§ 7. Every dispenser of drugs shall keep a record of all sales of strychnine, arsenic, opium, or its preparations, unless prescribed by a physician, and the said record shall be open to inspection by proper legal authority. Provided that nothing in this act shall prohibit the sale of commercial drugs in general stores, and this section shall not be deemed to require the keeping of a record, in such stores, of sales of the preparations of opium.

The editor of the *Weekly Drug News* points out the fact that this places restrictions upon the only class of dealers who are most likely to protect the public from improper use of poisons, and gives free license to grocers and general store-keepers.

Since all drugs are, strictly speaking, commercial, we see no reason why the general store-keeper may not escape all trouble by avoiding any representation that he is a pharmacist.

Wisconsin Druggists' Union.—The following has been circulated throughout the State by a committee of the Wisconsin Pharmaceutical Association, for signatures, and is said to have met with much favor in Madison, Janesville, Fond du Lac, and other cities:

We, the undersigned———druggists, hereby form ourselves into the "Druggists' Union," the object being to regulate the sale of patent and proprietary medicines at retail. And we hereby pledge ourselves to adhere to the resolutions adopted by this meeting, a copy of which will be furnished to each member.

It is further agreed that, in case any member violates the adopted scale of prices, either directly or indirectly, such person or firm shall, upon conviction, forfeit the sum of $25, to be paid to the Druggists' Union.

Said forfeit shall be paid only by order of a committee, to be composed of three druggists, one of whom shall be chosen by the informant, one by the accused, and the other by the two already chosen, and when so paid, to be divided equally among the other druggists signing this agreement. This agreement to take effect on its signing by all the druggists and patent-medicine dealers.

We hereby agree to sell all patent or proprietary medicines and articles at the prices established by the manufacturers, as per retail list of Van Schaack, Stevenson & Co.

It is further agreed that any unstable and old stock preparations may be sold by the owner, with a view to close them out, for such prices as they may see fit.

And it is further agreed that, if at any time any of the parties signing the above articles are dissatisfied, they may withdraw, upon serving thirty days' notice, in writing, upon the Secretary of the Local Union.

California.—The annual meeting of the Alumni Association of the Cal. Coll. of Pharm. was held at the College Hall, Thursday evening, Nov. 8th.

In the absence of the President and Vice-President, the meeting was called to order by F. Lengfeld, senior member of the Executive Committee.

The reports of the various officers and committees were read and accepted, officers for the next year were elected, and subjects concerning the welfare of the College were discussed.

Among other subjects, that of the separation of the College from the Cal. Pharm. Soc., and joining it to the University of California, on the same basis as the Medical and Dental Departments, received the approval of most of the member spresent, as did also that of raising the percentage necessary for graduating to the old standard of 66⅔ per cent, instead of 60 per cent to which it was lowered by the trustees last year. After discussing other, unimportant business, the meeting adjourned.

The officers for the ensuing year are: *President*, D. M. Gove; *Vice-President*, S. L. Leszynsky; *Secretary*, D. M. Fletcher; *Treasurer*, Chas. M. Troppman; *Executive Committee*, to serve one year, F. Lengfeld and J. H. Barbat; to serve two years, W. B. Beckett and A. L. Scholl.

D. M. Fletcher, *Sec.*

Michigan.—In compliance with a call signed by upwards of 300 pharmacists, a meeting was held at Lansing, on the 14th and 15th of November, with an attendance of 78 persons. The organization of a State Pharmaceutical Association was accomplished and the following-named persons elected to office: *President*, Frank Wells, Lansing; *Vice-Presidents*, Isaac Watts, Grand Rapids; James Dodd, Buchanan; W. B. Wilson, Muskegon; *Permanent Secretary*, Jacob Jerson, Muskegon; *Assistant Secretary*, A. W. Allen, Detroit; *Treasurer*, William Dupont, Detroit.

The pharmacists of Detroit held a meeting, on the 18th of October, and organized an Association, electing A. B. Stevens, *President;* A. W. Allen, *Vice-President;* and F. Inglis, *Secretary* and *Treasurer.*

The St. Louis, Mo., Drug Clerks are about to organize an Association.

Minnesota Pharmacists held a meeting at St. Paul, on the 9th of October, to take steps for organizing a State Association.

National Retail Drug Association.—Mr. E. A. Sayre, of Brooklyn, the Chairman of the Executive Committee, reports that, up to the 15th of November, the membership of this Association had increased to about 500.

New York.—At the meeting of the Kings County Society, held on the 12th of November, the attendance was unusually small, and much of the time was occupied in discussing the prospects and purposes of the N. R. D. A. and "trade interests." Solutions for show-bottles was the chief topic of interest besides.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

287,429. *Manufacture of Medicated Food.*—Charles Isidore Flasschoen, Paris, France. A mixture for union with bread, consisting of salts of iron, manganese, and phosphate of lime.

287,504. *Cork Puller or Screw.*—Frederick Coppel, Hoboken, N. J.

287,551. *Process of Making Sodium Carbonate.*—Clovis Knab, Houssigny, assignor to Société Anonyme Lorraine Industrielle, Nancy, France.

287,602. *Composition for Ague.*—Thomas A. Wilson, Lodi, Cal. Consists of pure water, whiskey, fluid extract of Jamaica ginger, and calabazilla root, or wild squash.

287,627. *Oil Filler.*—Rollin C. Clark, Corry, Pa., and William F. Bucher, Cleveland, Ohio.

287,642. *Medicated Soap.*—John James Dillard, Eureka Springs, Ark. Consists of Eureka Springs water, or its chemical equivalents, sulphur, glycerin, borax, chrysophanic acid, tincture arnica, cocoa-nut oil, and concentrated lye.

287,681. *Vaginal Syringe.*—Carl L. Jensen, Philadelphia, Pa.

287,701. *Veterinary Medicine.*—Thomas L. Miller, Pearsall, Tex. Consists of carbolic acid, infusion of elder, infusion of cactus, infusion of prickly-pear, pine-tar, and Castile soap.

287,760. *Ozone Generator.*—Wm. A. Gay, Tonawanda, assignor of one-half to John Otto, Buffalo, N. Y.

287,781. *Medicated Effervescent Salts.*—Caspar B. Shafer, Washington, D. C. The process of preparing effervescent natural mass which consists in evaporating natural water until the salts therein contained are reduced to a dry

powder, and then incorporating with the dry mass an acid or acid salt, and a suitable alkaline carbonate, or bicarbonate.

288,106. *Process of and Apparatus for Extracting Oil from Fish-Liver and Blubber.*—Freeman Paysant, Lockport, Nova Scotia, Can. Consists in interposing a stratum of water between the oil-yielding substance and the furnace.

288,140. *Pessary.*—William W. Turver, Parkdale, Ontario, Can.

ITEMS.

Theobald Frohwein, one of the best-known pharmacists of New York, died on November 16th, of pneumonia, after an illness of several weeks. He was born at Atzmannsdorf (Weimar, Germany), on September 7th, 1836. He graduated at the College of Pharmacy of the city of New York in 1863, was elected a member of the College on December 3d of the same year, and soon became one of its most active members. When the first Pharmacy Board was created, for the city and county of New York, by act of the Legislature, in 1871, he was appointed a member thereof, and, after this Board had been legislated out of office, and the organization of the new Board was delegated to the College, he was unanimously elected a member of it, in recognition of the valuable services he had rendered the profession. During his membership in the College, he held various offices, as Trustee, Vice-President, and Treasurer. In this latter capacity, from 1874 to 1880, his careful administration of the financial affairs of the College was one of the chief factors of the prosperous growth of the corporation. He was buried at the Lutheran cemetery, on November 18th, 1883.

M. Chevreul, the nestor of chemists, completed his ninety-eighth year of age on the 1st of September last. He was born at Angers in the night of August 31st, 1786. At the early age of twenty years, he was conservator at the Museum. Among his great discoveries in chemistry figure prominently the separation of the fat bodies and the chemical constitution of oleine, stearine, and margarine. To him is also due the doctrine of the contrast of colors, of their shades, and of the determination of shades.

Dr. Leonard D. Gale, an old, well-known scientist, and for a number of years an examiner in the chemical class at the Patent Office, died in Washington on October 23d, at the age of eighty-three. He was a great friend of Prof. Morse, and assisted him in building the first telegraph line between Washington and Baltimore. Dr. Gale went to Washington in 1846, and has since resided there. It was said in the early days of the electric telegraph that Prof. Henry's discoveries in electricity contributed very much to Prof. Morse's success, and that Dr. Gale was the mutual friend of both.

Dr. Henry Leffmann, Professor of Chemistry in the Philadelphia Polyclinic, has been elected to the chair of chemistry and metallurgy in the Pennsylvania Dental College, which had been rendered vacant by the death of Prof. T. L. Buckingham.

Eduard Van Der Heyden, President of the Antwerp Pharmaceutical Society, Vice-president of the Belgian Pharmaceutical Association, Honorary and Corresponding member of various scientific societies, etc., one of the leading pharmacists of Belgium, and well-known throughout the pharmaceutical world, died on October 17th.

William Squire, senior partner of the firm of Hearon, Squire & Francis, wholesale druggists of London, died on October 11th.

A. J. C. Geerts, Director of the Japanese State Laboratory, died recently in Japan. He entered the Dutch service as a military apothecary, and as such went into the service of the Japanese government, where he soon acquired a prominent position.

Oliver Wendell Holmes says that the great secret of success in every form of quackery is hope kept alive in the patient; while the too fatal gift of science is a prognosis of despair.

Dr. H. J. Menninger, the well-known Brooklyn pharmacist, has lately been elected a Coroner for Kings County.

Atlanta's Physicians.—One physician to every 277 of its population is the quota of doctors in Atlanta.

Tar may be readily removed from the hands by rubbing with the outside of fresh orange or lemon peel, and wiping dry immediately. The volatile oils in the peel dissolve the tar, so that it can be wiped off.

A World's Fair in New Orleans.—The New Orleans Council has granted the use of the upper city park for next year to the world's exposition, and appropriated $100,000 to embellish the grounds and erect a horticultural hall.

International Pharmaceutical Congress—The sixth meeting of the International Pharmaceutical Congress, which was intended to be held in Brussels, some time during 1884, has been postponed to the year 1885, owing to the impossibility of completing the preliminary work on the proposed international pharmacopœia before that time.

Pharmacopœia Corrections.

It is requested that the following alterations be made in any copy of the Pharmacopœia in which it may be found necessary:

PAGE	LINE			
11,	12	from top	}	Read:
193,	4	" bottom	}	2 in place
206,	20	" top	}	of 0.5.
16,	1	" bottom	}	Read: 6.75 in
398,	4	" top	}	place of 13.5.

139, lines 13 and 12 from bottom, read:
Alcohol,
Water, each, *a sufficient quantity*
in place of:
Alcohol, *one hundred and twenty parts*.....120
Diluted Alcohol, *a sufficient quantity.*

304, line 17 from top, read **Stronger Ether** in place of: **Ether.**

320, line 11 from top, read:
Sweet Orange Peel, recently separated from the fresh fruit, deprived of the inner white layer, etc., etc.

351, lines 17 and 18 from top, read:
Water, *forty parts*.....40
Alcohol, *forty parts*.....40
in place of:
Water, *four parts*..... 4
Alcohol, *four parts*..... 4

397, line 7 from bottom, read: 0.0027 for 0.0054.

By forwarding to the publishers, Wm. Wood & Co., 56 and 58 Lafayette Place, New York, a two-cent stamp, those who wish it can obtain a sheet of the size of the page of the Pharmacopœia, with the above corrections.

Grocer's Drugs.—In connection with the circular issued last year by a well-known wholesale grocer, recommending the addition of medicines to the stock of general store-keepers, it will interest some of our readers to know that the following so-called "grocer's drugs" appear among articles for which prices are quoted in one of the leading grocers' journals:

Acid, oxalic, in boxes	per doz.	75
Alum	per lb.	3
Ammonia, 20-lb. jars (jars 65 c.)	per lb.	21
Blue vitriol	per lb.	8
Brimstone, roll	per lb.	2¾
Camphor gum (5 and 10-lb. boxes)	per lb.	28
Castor oil, 2-oz. bottles	per doz.	50
Castor oil, 4-oz. bottles	per doz.	75
Copperas	per lb.	1½
Laudanum, 2-oz. bottles	per doz.	1 05
Licorice, gen. Calabria, 6-lb. boxes	per lb.	35
Licorice root, selected	per lb.	13
Paregoric, 2-oz. bottles	per doz.	60
Saltpetre, pure, 25-lb. boxes	per lb.	9
Saltpetre, pure, 100-lb. kegs	per lb.	8½
Saltpetre, double-refined	per lb.	11
Salts, Epsom	per lb.	2½
Salts, Glauber, per lb.	per lb.	2
Salts, Rochelle	per lb.	32
Spirits of nitre, 2 oz.	per doz.	75
Sponges, 36 on string	per string	1 25
Sulphur flour	per lb.	3½
Tincture of rhubarb, 2 oz.	per doz.	70

PHARMACEUTICAL CALENDAR.—JANUARY.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.
Wed. 2d.	Rhode Island Pharm. Assoc.—Annual Meeting at Providence.
Thurs. 3d.	Louisville (Ky.) Coll. of Pharm.
	Alumni Assoc. Philadelphia Coll. of Pharm.
Fri. 4th.	Cleveland (Ohio) Pharm. Assoc.
	American Chemical Soc.—8 P.M., Univ. Building, New York City.
Mon. 7th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.
	Pittsburgh (Pa.) Coll. of Pharm.
Tues. 8th.	St. Louis (Mo.) Coll. of Pharm.
	Massachusetts Coll. of Pharm.—Boston.
	National Coll. of Pharm.—Washington.
Wed. 9th.	New York (City) Board of Pharm.—2 P.M., 209-211 E. 23d st.
Thurs. 10th.	New York Coll. of Pharm.—209-211 E. 23d st., 8 P.M.
Thurs. 10th.	Newark (N. J.) Pharm. Assoc.
	California Pharm. Soc.—Annual Meeting at San Francisco.
	Alumni Assoc. Philad. Coll. Pharm.—Philadelphia, Pa.
	Maryland Coll. Pharm.—Semi-annual Meeting at Baltimore.
	N. Y. German Apoth. Soc.—10 P.M., Beethoven Hall, Annual Meeting.
	Lancaster Co. (Pa.) Pharm. Soc.
Tues. 15th.	Alumni Assoc. St. Louis (Mo.) Coll. Pharm.
	Philadelphia (Pa.) Coll. of Pharm.
	St. Joseph (Mo.) Pharm. Assoc.
Tues. 22d.	Boston (Mass.) Druggists' Assoc.
Thurs. 31st.	Kings Co. (N. Y.) Board of Pharm.—Brooklyn

American Druggist

Vol. XIII. No. 2. NEW YORK, FEBRUARY, 1884. Whole No. 116.

[ORIGINAL COMMUNICATION.]

THE MANUFACTURE OF ANTISEPTIC DRESSINGS.*

BY B. LEROY SPILLER.

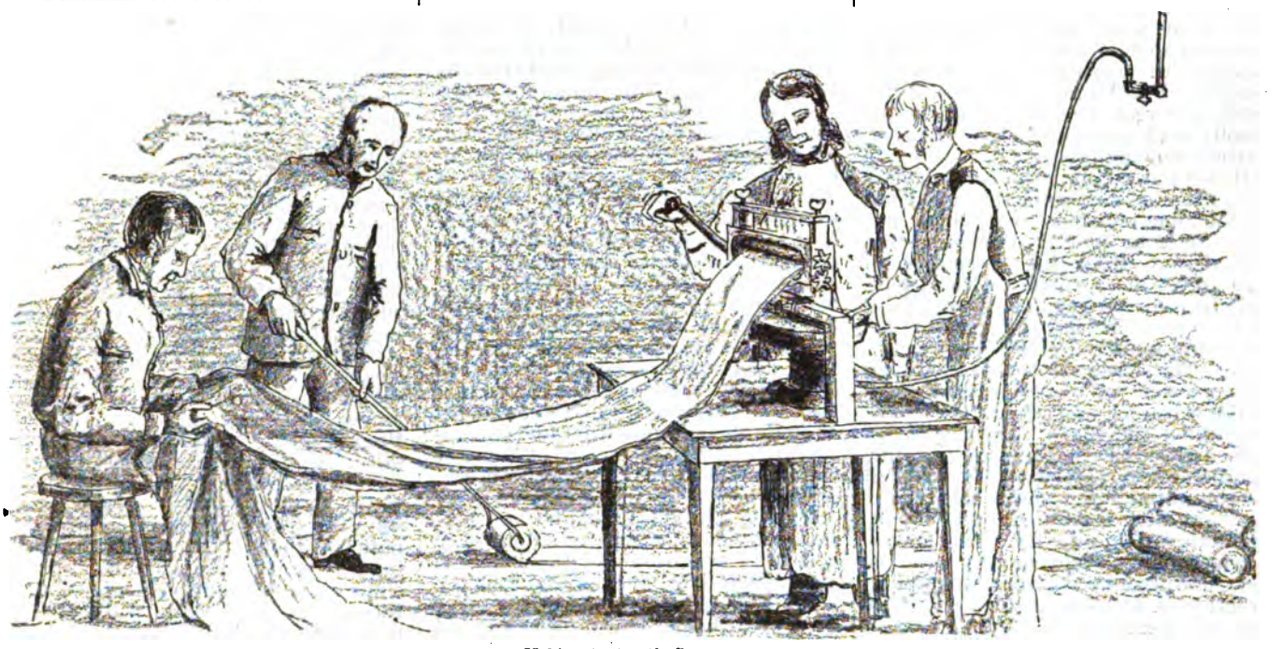
MANY formulas for carbolized gauze have been published since its introduction by Mr. Lister, but all consist essentially in impregnating cotton gauze with some substance capable of holding the carbolic acid. After an experience of over two years, in which time I have made many thousand yards of this preparation, and have tried most of the formulas published, I give the preference to that originally furnished by Mr. Lister, with slight modifications. Our formula is as follows:

	Parts.
Carbolic acid	1
Cosmoline	2
Resin	3
Paraffin	7

The use of "Cosmoline" is the modification referred to. Lister's formula, leaving out the Cosmoline, would read; resin, 5, the others remaining as above. Glycerin could be used with almost equal advantage, preference being given to cosmoline as it is cheaper and has more body. The resin and paraffin should be the best that can be bought.

To prepare the mixture, melt the paraffin and resin together (previously broken small), add the cosmoline, and when melted, pour in the acid slowly, stirring continuously. The acid should be placed on a steam or water bath that it may be near the temperature of the melted mixture; if this is not done, on adding the acid, much frothing will occur. This inconvenience is entirely obviated if the acid is hot.

The manner in which the gauze is impregnated with the mixture, is shown in the adjoining illustration. The gauze cut in any convenient length (about 20 yards) is folded lengthwise in four folds, stretched tightly, and rolled as shown in the sketch; these rolls are of convenient size, readily impregnated by the mixture and run freely through the wringer. All being now in readiness, a roll is placed in the mixture, and when saturated, is started through the wringer; an assistant turning the crank, and another receiving the gauze as it comes through, opening it out, that it may be more easily folded and free from creases. One man must give his whole attention to keeping the mixture supplied with gauze, seeing that it runs through evenly, regulating the heat, etc.; the excess of mixture is poured out and runs back into the pan. The gauze as thus made is very light colored, soft and pliable, and has given great satisfaction to all who have used it. It is essential that the mixture should not be heated longer than necessary; therefore everything should be in readiness by the time the ingredients are melted. If this is not done the product will be dark-colored and full of streaks, owing to the precipitation of resin. After the gauze is finished, it should be re-folded and packed in a box or other suitable receptacle, and tightly closed.



Making Antiseptic Gauze.

The gauze used is a peculiar unstarched fabric, known in trade as "colerain," selected on account of the facility with which secretions penetrate its meshes. It costs to manufacture carbolized gauze, about 6 cents per yard; the gauze itself costing from 4 to 4½ cents in large quantities. The cost of carbolizing is about 1½ cents per yard. The formula, as given, calling the parts pounds, is sufficient to carbolize 160 yards of the gauze.

Gauze used by surgeons in private practice is usually obtained from the manufacturer, pharmacists not being called upon to prepare it. I have noticed several formulas which could be used without the special apparatus described, and by which small quantities might be made, if occasion demanded. Such formulas are Bruns' and Lehn's and are as follows:

BRUN'S.

Resin	400 grammes.
Castor oil	40 "
Carbolic acid	100 "
Alcohol	2 liters.

LEHN'S.

Resin	4 parts.
Paraffin	5 "
Glycerin	2 "
Carbolic acid	2 "
Alcohol	20 "

Saturate the gauze thoroughly with either of these solutions, wring it out and dry it by hanging it up horizontally or by shaking it while spread out in lengths of about 7 yards. If done in the latter way, two persons holding the two ends, and shaking it up and down, it will be sufficiently dry in a few minutes. This gauze is very soft and pliable, and is free from the drawback of irritating the skin, which is sometimes the case when paraffin is employed, but it is necessarily more expensive.

The use of antiseptics is by no means confined to carbolic acid. Iodoform, thymol, oil of eucalyptus, and many other substances are used; physicians differing in their opinion as to their respective merits. I have had occasion to make small quantities of gauze prepared with the above antiseptics. The method of making these does not differ essentially from the last two given, the manipulation being the same; but in the case of iodoform it is necessary to use ether as the solvent.

SALICYLATED COTTON.

Another preparation used as a dressing is salicylated cotton, the antiseptic action of which is regarded by some surgeons as certain as that of carbolic dressing; it being claimed that it is less irritating, and, not being volatile, can be kept for a longer time without impairment of its qualities. This is prepared with cleanly, carded cotton, or, what is better, absorbent cotton. The solution is made by dissolving 100 grammes of salicylic acid in 1,000 grammes of alcohol, and adding 6 liters of water and 150 grammes of castor oil. 1,000 grammes of cotton are impregnated with this solution by kneading and turning it with the hands, until the solution is equally distributed; it is then put in a warm place to dry. This will yield a cotton containing ten per cent of the acid. The object of the castor oil is to prevent the dusting of the acid, on being handled, in the form of fine powder.

Other formulas are given (those of Bruns and Thiersch), which give good results, but are somewhat more expensive in that a larger amount of alcohol is used to saturate the cotton. In making the solution for salicylated cotton the object in view is to get the acid into

* Abstract of a graduation thesis presented to the Massachusetts College of Pharmacy.

solution and also have bulk enough to thoroughly moisten the cotton; thereby insuring the equal distribution of the acid. In the formula given I have used only sufficient alcohol to hold the acid in solution, making the solution to the required bulk with water. This is, of course, much cheaper, its only drawbak being that it takes longer to dry.

BORATED COTTON.

This may be made in the same way by substituting boric acid for salicylic acid, except that the boric acid may be dissolved in water by the aid of heat, which should be kept up during the saturation of the cotton, so that the acid will not crystallize upon it.

OILED PAPER.

Oiled paper makes a very good substitute for oiled silk when economy is necessary. The only method of making this paper that I have seen is by applying the oil with a brush. The oil is painted on both sides of the first sheet, laid flat on a board, and the remaining sheets, laid one upon the other, painting the oil only on the upper side of each sheet, which will oil the under side of the next one placed upon it. Fifty sheets is a suitable number to do in this way at one time. By warming the oil, it can be applied with greater ease and rapidity, the paper absorbing it more readily. For larger quantities (fifty yards per week) the above process is wholly inadequate, and I have resorted to the following process:

Boiled linseed oil is to be re-boiled with litharge, zinc sulphate, and lead acetate, one ounce to the gallon, for three or four hours; allow to settle and decant from the sediment; it thus dries more rapidly. The paper may be common manilla, twenty-four by thirty-six inches, fifty pounds to the ream, folding in four folds, lengthwise. The sheets are to be separated into packages of ten each; immersed in the warm oil, and when the oil has permeated the fibres, they are to be passed through the wringer in the manner described for carbolized gauze, passing through ten sheets at a time; they are then separated, opened out, and hung on lines to dry. This makes a paper of excellent quality, and is very useful and economical in hospital practice, being used to cover poultices and wet dressings.

Danger from Use of Antiseptic Gauze.

DR. RUPPRECHT, chief surgeon of the Diakonissen Anstalt of Dresden, states that antiseptic gauze, containing six per cent of carbolic acid, may, when employed in large dressings, produce death by absorption through the skin, while three per-cent gauze for adults and one-per cent for children, though amply strong to insure an aseptic condition of wounds, is practically harmless. Lister's, Arnold's and Kahnemann's gauze each contain about six per cent of carbolic acid.

Schuyler's Powder.—THIS is a sort of Dover's Powder, composed as follows:

Sulph. Morphine.....	1 part.
Camphor.....	6 parts.
Ipecac, pow'd.	6 "
Glycyrrhiza, pow'd...	25 "
Sugar, pow'd.....	25 "

—*Rev. farm.* and *Ph. Post.*

Alcohol from Melons.—A French investigator has succeeded in extracting alcohol from the pulp of melons. Alcoholic fermentation does not take place in the pulp, notwithstanding the sugar it contains, until sulphuric acid is added. Five liters of alcohol can be extracted from thirty kilogrammes of pulp.—*Br. Med. Jour.*

[ORIGINAL COMMUNICATION.]

POLYSOLVE; ITS PROPERTIES AND USES.

BY DR. A. MUELLER JACOBS, OF NEW YORK.

IF any tri-glyceride, such as almond oil, olive oil, or castor oil, be treated with 30 to 40 per cent of sulphuric acid, care being taken that the temperature do not rise over 50° C., and no sulphurous acid vapor be given off (which would indicate more or less decomposition), and if the mass afterwards be diluted with water and allowed to stand, an oily, acid layer, soluble in water, will separate, and may be removed with a separating funnel. This layer consists chiefly of a compound of sulphuric and oleic acid, having the composition: $C_{17}H_{33}.COOH.SO_3H$, and is known under the name sulpho-oleic acid. The mixture contains, besides, varying quantities of the unaltered tri-glyceride (oil) in solution, which may be removed almost completely, by shaking the aqueous solution with ether, carbon disulphide, oil of turpentine, etc., etc., or by subjecting it to dialysis.

The pure sulpho-oleic acid, which may also be obtained directly from oleic acid, is easily soluble in water and in alcohol, less readily in ether, has a strongly acid reaction, and is only with difficulty separated from its aqueous solution by mineral acids, even when used in large quantities. Its specific gravity is about 1.025, and, when boiled with water, or when allowed to stand for some time, either in its undiluted form or in aqueous solution, it decomposes with separation of sulphuric acid and formation of two new acids: one liquid, congealing at — 15° C. (probably oxy-oleic acid, $C_{18}H_{34}O_3$), and the other solid, melting near 70° C., and much resembling stearic acid, but differing from the latter by a larger percentage of oxygen. Both of these acids are not yet sufficiently investigated to clear up their composition and constitution. (Compare specifications of German Patent No. 17,264 of March 9th, 1882, issued to Dr. A. Müller-Jacobs.) Alcoholic solutions of iodine and bromine are decolorized by sulpho-oleic acid until two atoms of the halogens are absorbed by one molecule of the acid; that is, simple addition takes place with formation of bromine and iodine substitution products of the fatty acid series.

Sulpho-oleic acid forms two series of salts with bases: the salts of the alkalies and the acid salts of the alkaline earths and heavy metals being soluble, while the neutral metallic salts appear in form of amorphous or lake-like precipitates, which are completely insoluble in water and only with difficulty in alcohol or ether. The salts of the alkalies are neutral, oily or syrupy, clear, water-soluble liquids which may be heated, without decomposition, to 150° C. The ammonium-salt, however, is liable to decompose at ordinary temperature and, after standing some time, acquires an acid reaction. The aqueous solutions of these salts foam like those of soap, and act like the latter, by dissolving and cleansing.

Those salts of the alkalies which are not entirely neutral do not form clear solutions with water; the latter also appear milky or opaque, if unaltered tri-glycerides (oils) are present. This milkiness or opacity, however, is removed instantly by a small quantity of water of ammonia.

When concentrated and in as pure a state as possible, the alkali-salts of sulpho-oleic or sulpho-ricinoleic acid, as well as the free sulpho-acids themselves, mix readily and completely, with a great variety of organic compounds, for instance with liquid hydrocarbons, particularly those of low boiling point, with chlorine-, iodine- and bromine-derivatives of the same, with ethers and alcohols (even the di-tri-atomic, etc., ones), with organic sulphur compounds, such as carbon disulphide, oil of mustard, mercaptane, etc., and with all essential oils. They also dissolve varying quantities of sulphur, iodoform, solid hydrocarbons, such as naphthalin, naphthol, anthracene, and paraffin, the terpenes and camphenes. These liquid mixtures of sulpho-oleates and other bodies have the property of forming emulsions or even clear solutions with water. The limit of miscibility (in form of emulsion) or solubility varies considerably, and depends both on the degree of concentration of the sulpho-oleate serving as a menstruum, and on certain, little understood, physical properties of the substances mixed with it. For instance, 100 parts of pure neutral sulpho-ricinoleate of sodium yield, with 50 parts of ether, an almost clear solution; so also with 30 parts of volatile oil of mustard, 30 parts of petroleum-benzin, 100 parts of coal-tar benzol, 40 parts of carbon disulphide, etc., etc. Larger quantities of these substances yield permanent milky emulsions, foaming when diluted and shaken with water.

This peculiar behavior of the sulpho-oleates, and particularly the sulpho-ricinoleate of alkalies toward many otherwise insoluble or difficultly soluble substances, as well as their pronounced saponaceous character and their great readiness of taking up and combining with liquids,* renders them eminently suitable for various technical and medical uses. They will be found excellent solvents for substances the employment of which, in a concentrated condition, is accompanied by certain untoward effects, or they may serve as vehicles in place of vaseline, oils, glycerin, etc., etc., in perfumery, soap-making, or in pharmacy.

Such mixtures of neutral sulpho-oleates of the alkalies with various insoluble or difficultly soluble bodies are named, by the author "Polysolve Preparations," and the liquid alkali-salt itself, forming the menstruum or solvent, is called "Polysolve" (from *πολυς* "*many*," and "*solvere*" "to solve"). This name is a general designation of the solvent, without indicating whether the base is sodium or potassium or ammonium. If any one of these salts is specially wanted, it is necessary to specify the base. For medicinal purposes the *sodium* salt is probably the most useful; the ammonium salt is not suitable, owing to its property, already mentioned above, of becoming acid even at ordinary temperatures.

A compound resembling those above described, namely a clear, water-soluble mixture of the sulpho-ricinoleate of an alkali with unaltered tri-glycerides (oils) was introduced by the author some years ago into the art of dying, as a mordant, under the name "Turkey-red oil" (*Türkischrothöl;* see German Pat. No. 1488, Sept. 27th. 1877), and has since then been quite generally adopted. Its effect depends chiefly upon the fact that it very easily and completely yields up the dissolved tri-glycerides to the fibre, whereby the latter becomes *animalized*, that is, acquires the property of combining with coloring matters in the same manner as animal fibre.

The number of mixtures capable of being produced by the above-described solvent is so great, and their applicability so manifold, that I must restrict myself to mentioning only a few of

* According to Knapp (*Lehrbuch der chem. Technologie*), the cleansing effects of a soap-solution are chiefly due to its great affinity for liquids of all kinds (its *Benetzbarkeit*, or "wetability"), whereby the layer of air condensed upon the surface to be cleaned (the skin, woven fabrics, etc.), is displaced and a close contact established between the soap-solution and the substance, in consequence of which the impurities may be more easily and completely removed. In this respect, the sulpho-oleates of the alkalies are scarcely inferior to soap-solutions.

these preparations and their properties.

Polysolve with Benzin. Containing 40 or 50 per cent of benzin. A clear, oily liquid miscible with water to a milky foaming liquid, from which the benzin does not separate even after standing for days. This is a most excellent detergent, for removing stains from fabrics, since it unites the properties of soap and of benzin. If applied to a fatty stain, both constituents of the mixture dissolve the fatty matters, the benzin then volatilizes and the stain may be removed by simply washing with water, without leaving a greasy outline.

The same compound, perfumed with some essential oil, may also be used advantageously for washing the hands.

In place of benzin, *Oil of Turpentine* can be employed for the same purposes.

Polysolve with (50 per cent of) Carbon Disulphide. It is well known that liquid or gaseous carbon disulphide is a poison rapidly acting upon the lower animals. Yet its general application for this purpose is greatly hampered by its inflammability, and further by the circumstance that in a concentrated condition, it rapidly destroys the cell-membranes. These drawbacks disappear entirely when it is dissolved in *Polysolve*. This solution, diluted with 5 to 10 parts of water, forms an emulsion which is capable of the most universal employment as an antiparasitic and which is infallible in its effects, if it be sprinkled, for instance, upon plants affected with parasites (such as caterpillars, lice, fungi, etc.). Applied in this manner carbon disulphide evaporates more slowly than when used in any other way; at the same time, it is also more minutely divided and is better able to exert its parasiticidal properties.

Polysolve with (5 per cent of) Volatile Oil of Mustard. Is soluble in water to a clear liquid. Contains the active principle of mustard in a *soluble* form, and is, of all conceivable methods, the most convenient and effective for medical use. It may thus be added to a foot-bath, to plasters, etc., etc.

Polysolve with Iodoform, Chloroform, Ether or Camphor. The first is prepared by dissolving 1 to 3 per cent of iodoform in the boiling polysolve (sodium-salt). On cooling, the excess crystallizes out. Camphor is first dissolved in alcohol and then added to the polysolve. Chloroform or ether are simply mixed with it, in any desired proportion.

The absorption of substances thus dissolved, when rubbed into the skin, is accelerated by the polysolve which acts not only as a vehicle, but also as a crystalloid; the therapeutic effects of drugs, particularly those of iodoform, are thereby greatly increased. It is, however, necessary to ascertain by further experiments whether the polysolve, in its perfectly neutral condition, is free from all irritating or other secondary effects upon the skin. The experience thus far gained with it appears to speak entirely in its favor and to show that we have here a new pharmaceutical product likely to become a rival to vaseline in many of its applications. It is well known that petroleum ointment actually opposes or retards the absorption of medicaments applied to the skin, and thereby diminishes their therapeutic value. Besides, it is by no means always bland and harmless, but sometimes produces quite undesired effects.

Since the acid metallic salts of the polysolve are soluble, or to express it in another way, since the neutral metallic sulpholeates are soluble in an excess of the polysolve, it is easy to prepare solutions containing, respectively, mercury, arsenic, antimony, copper, silver, etc., etc., as base.

Polysolve with Sulphur (Thio-Polysolve). Sulphur is dissolved by the menstruum when heated, but, on cooling, most of it crystallizes out, about two per cent remaining in solution. A larger quantity may be incorporated by first dissolving the sulphur in carbon disulphide. Since the menstruum has the properties of soap, these sulphur preparations may be used as specifics against certain skin diseases (scabies, eczema, etc.), either in a concentrated form, or diluted with water.

Employment of Polysolve in Perfumery.—It may be predicted that the sulpholeates are destined to play an important rôle in perfumery, since they are miscible, almost in all proportions, with all ethereal oils and aromatic substances, while at the same time possessing the characters of a soap, that is, of an active detergent and of an oily, neutral, water-soluble body. On adding alcoholic extracts, or essential oils of jasmine, heliotrope, patchouly, magnolia, violet, ylang-ylang, etc., or eau de Cologne, or other compound essences to concentrated sulpholeates, very fine hair-oils are obtained, which may be diluted with water and are most efficient for cleansing the scalp, the hair, and even the face and hands, owing to the property before mentioned of readily combining with liquids. By dissolving innocuous coloring matters (such as aluminium-alizarate) in the polysolve, an excellent rouge may be prepared.

For the present, it will be sufficient to have directed the attention of physicians, pharmacists, and technologists to the interesting and practically useful combinations above cited. What other products may be obtained by mixing various bodies with polysolve, will be reserved for future experiments.

Finally, I would state that application has been made for a patent covering the above-named preparations.

Note.—L. Liechti and W. Suida (in *Mittheil. d. technolog. Gewerbemuseums in Wien*, 1833, August number, p. 7) regard the above-mentioned, water-soluble substance (sulpholeic acid), as a *glycerin*-compound having the composition:

$$\left.\begin{matrix} C_{18}H_{33}O_2 \\ SO_4 \\ C_{18}H_{33}O_2 \end{matrix}\right\} \begin{matrix} C_3H_5.OH \\ C_3H_5.OH \end{matrix}$$

and suppose it to be the glycerin-ether of mono-oxyoleic and sulphuric acid. The analytical figures appear to speak in favor of this composition; but the assumption is untenable, because the action of sulphuric acid upon oils, even when properly moderated, is accompanied by an *elimination* of glycerin, a fact which was established already by Frémy (*Annal. Chim. Phys.*, 65, 121). The same water-soluble body which I regard as a sulpho-acid may also be obtained from chemically-pure oleic acid: this fact alone sufficiently proves that it cannot have the composition of the glycerin-ether above-given. It is probable that the body examined by Liechti and Suida was not a definite chemical compound, but a *mixture* of sulphooleic acid and of a certain proportion of triglyceride (oil) dissolved therein; and that the elimination of glycerin which the authors found to occur on boiling the whole mixture with water is to be ascribed to a splitting-up of the dissolved oil under the influence of the acid.

Resorcin for Cystitis.

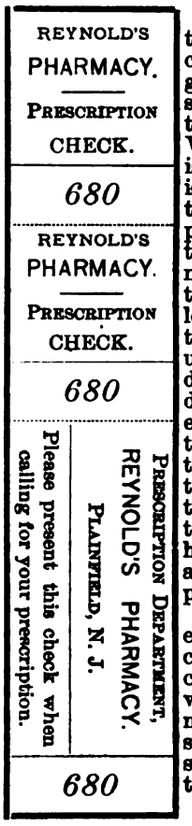
Dr. J. Andeer, *Centralbl. f. die Med. Wissen.*, reports extensive use of *resorcin* in acute and chronic cystitis, and claims for it almost specific curative power. He reports one hundred and fifty-six cases where, either by him or to his personal knowledge, it was injected into the human bladder with the best results in vesical catarrh. Acute cases have been entirely cured by the injection of a five-per-cent solution.

[Original Communication.]

DUPLICATE PRESCRIPTION CHECKS.

BY H. P. REYNOLDS.

At the last meeting of the New Jersey Pharmaceutical Association, I presented samples of a newly-devised prescription check which had proved itself in practice a great convenience. It was liked by those who examined it, and has been the occasion of some letters of inquiry. The accompanying illustration will enable any of your readers to provide themselves with the checks at little cost if they are willing to take the trouble to number and gum them by hand, and this will not be found a formidable task if the checks be printed six or eight on a sheet. Or they may be furnished complete by any printer having facilities for doing gummed work and numbering. They may be had of Mr. David Heston, Frankford, Philadelphia, at $5 a thousand, or at a less rate for a larger order.



Very little description is necessary. The coupons only are gummed, and are so scored in printing as to be easily torn off. When a prescription is received, the check is handed to the customer, and the coupons are affixed to the prescription by moistening one of them, the other being left projecting. When the medicine is made up and wrapped, the duplicate coupon is detached and gummed on the outside of the wrapper to await the presentation of the check. In practise a strong but not too thick linen paper has been found best adapted to the purpose.

The device is modestly offered for the convenience of the craft, and samples will be willingly mailed to any one sending a two-cent stamp for return postage.

Plainfield, N. J., December 11th, 1883.

Oxide of Zinc as a Substitute for Iodoform. — In the treatment of wounds, Dr. Petersen, of Kiel, considers zinc oxide a good substitute for iodoform. It is cheaper, and is not poisonous.

Salicylic Ointment for Eczema.

In the eczema of the scalp in children, Dr. Lassar recommends, after cleaning the surface,

℞ Acid. salicylic..... 1 g.
Tinct. benzoini..... 2 g.
Ung. petrolei.....50 g.
M.

to be employed two or three times a day.

In eczema of the non-hairy portions he employs

℞ Acid. salicylic ..... 2 g.
Ung. petrolei .....50 g.
Zinci oxidi,
Amyli.....āā 25 g.
M.

This paste is absolutely unirritating, and, besides, has the advantage that it does not retain the exudation upon the skin, but allows it to escape.—*Centralblatt für Chirurgie*, No. 28.

Synthesis of Nicotine.

JULIUS HENSEL, of Zurich, announces in the *Pharm. Zeit.* of Sept. 26th, 1883, that he has accomplished the synthesis of nicotine in the following manner: Benzoic acid is dissolved in acetone, and mixed with concentrated sulphuric acid. On warming, and the resulting precipitate is redissolved by the excess of acetone present. When cold the liquid is mixed with a solution of ammonia in absolute alcohol, which causes a separation of sulphate of ammonium, and yields a liquid containing the nicotine in solution, besides acetone and other products. On pouring the mixture now into not too large a quantity of water, the nicotine collects partly on the surface.

Clay-Pencils vs. Lead-Pencils.

LEAD-PENCILS made from graphite have at present a rival in pencils made from clay, and colored with suitable agents. Their mode of preparation is given as follows: 92 parts of clay, and 12.5 parts of soap are intimately mixed with enough of any aniline color to produce the proper depth of tint. The mass is subjected to pressure and formed into pencils which are put up in wood, like ordinary lead-pencils.

Poteline.

THIS] is the name of a mixture of gelatin, glycerin, and tannin, to which sulphate of barium, or of zinc, may be added, and which may be colored by vegetable colors. It may be kneaded, while warm; when cold, it may be used for numerous purposes. It can be turned, filed, bored, polished, and can be used for hermetically sealing bottles, etc. The proportion of ingredients varies according to the uses; for sealing bottles, of course, it must be used liquid. Potel, the inventor, uses it with success for preserving meat, by applying it liquid, at a temperature of 50-60° C.—*Journ. de Ph. d'Als.-Lorr.*

Remedy for Leaky Stylographic Pens.

THE stylographic pen is a great convenience, but no inventor seems to have succeeded thus far in making a joint which will prevent soiling the fingers with ink. A remedy for this leakage which has been tried, and thus far seems to be complete, is to rub the joint on which the fingers rest with the thin edge of a piece of wax. Hold the pen over a candle, lamp, or the flame of a match, till the wax melts, when it will lute the joint, so that no ink can escape through it.—*Sci. Amer.*

A Home-Made Fountain Pen.

TAKE two ordinary steel pens of the same pattern, and insert them in the common holder. The inner pen will be the writing-pen. Between this and the outer pen will be held a supply of ink; when they are once dipped into the inkstand, they will last to write several lines of manuscript. It is not necessary that the points of the two pens should be very near together; but if the flow of ink is not rapid enough, the points may be brought nearer by a bit of thread or a minute rubber band. —*Scient. Am.*

Citrate of Lithium.

THOMPSON draws attention to the fact that citrate of lithium is by no means "deliquescent" as stated in the British and American Pharmacopœias. It may be prepared either in crystals or in form of powder. The percentage of water in the latter varies by about 5 per cent, according as the salt has been dried at 100° C. or 115° C., between which temperatures the last molecule of water is lost. The composition of the crystallized salt is constant and corresponds to the formula: $Li_3C_6H_5O_7.4H_2O$. Of the 4 molecules of water, three pass off at 100° C., the remainder at a higher temperature.

CHRYSANTHEMUM CORYMBOSUM OR PYRETHRUM.

THIS is a robust herbaceous plant, with elegantly-cut foliage and white and yellow flower heads, known also in gardens as *Pyrethrum corymbosum*. Under cultivation, it grows about four feet high, and probably higher in rich soil. It is as hardy and persistent as the allied species, *C. Parthenium*, syn. *Pyrethrum Parthenium*, of which the Golden Feather is a variety. In a wild state, it grows from one to three feet high, and it is a common plant in Central and Southern Europe, ranging from Portugal to Switzerland, Austria, and Turkey. Our illustration, which is from the *Gardener's Chronicle*, was taken from a plant in the herbaceous ground at Kew, where we recently noticed it as the best and most effective of its near allies.

The insecticide and insectifuge qualities of the dried and finely-powdered flower heads of different species of *Pyrethrum*, and the harmlessness of the powder to man, to other animals, and to plants, have long since been known. Used against various household pests, under the names "Persian insect powder," or "Dalmatian insect powder," it has hitherto been put up in small bottles or packages, and sold at high prices. The so-called Persian powder is made from the flowers of *Pyrethrum carneum* and *P. roseum*, while that from *P. cinerariæfolium*, a native of Dalmatia, Herzegovina, and Montenegro, is more generally known as Dalmatian powder.

Some interesting experiments made during the past year on different insects by Mr. William Saunders, of London, Ontario, show that the use of this powder may be satisfactorily extended beyond the household, while a series made by Professor Riley, in the summer of 1878, with the same powder on the cotton worm showed it to have striking destructive powers, the slightest puff of the powder causing certain death and the almost instant dropping of the worm from the plant. Repeated on a still more extensive scale, the present year, at Columbus, Texas, the powder proved equally satisfactory in the field.

Here, then, we have a remedy far exceeding any other, so far known, in efficacy and harmlessness to man and plant, and the only question has been to reduce its cost. Mr. Milco, a native of Dalmatia, has been cultivating the *P. cinerariæfolium* in California in constantly increasing area, for the past three years, and deserves great credit for his efforts in introducing it. The insect powders made from the California-grown flowers have proved to be very effective.

A Simple Method of Redistilling Ether.

DR. ADOLPH TSCHEPPE, of New York, in reviewing the article "Æther fortior" of the new U. S. (*Pharm. Rundschau*, 1883, 268) mentions a method of purifying and redistilling ether which, though not entirely new, yet will be so to many of our readers.

Take two ordinary 5-pint packing bottles, fit then with sound, conical perforated corks, and connect them together by means of a tin pipe about two feet long. Into one of the bottles put some pieces of caustic lime and fill it to two-thirds with washed ether. Into the other pour about two drachms of ether and evaporate these by putting the bottle into warm water. When the air is expelled and the ether

in the latter has just been evaporated, connect the bottles by means of the tin pipe, put the first bottle (containing the ether) into a vessel of warm water, and the second empty bottle into ice-water, whereupon the ether will rapidly distil over, and may thus be obtained of a low specific gravity; toward the end, the distillation is interrupted when the bottles may be cooled off by placing them in cold water, emptied, and then again charged as before. The more perfect a vacuum is produced in the bottles, the lower will be the temperature at which the ether distils over, and the smaller will be the difference between the temperature at which the ether will boil in one bottle, and that at which it will be condensed in the other. It is not advisable to use a glass tube instead of a tin pipe, as the former easily breaks. The stoppers [and also the inside necks of the bottles] must be conical to prevent the pressure of the external air pushing them into the bottles.

Are Nickel-plated Cooking and Eating Utensils poisonous?

NICKELED utensils were first made more than thirty years ago by the late Professor Boettger, but have recently become more popular, owing to the success that has attended Dr. Fleitmann's attempts to work nickel on a large scale, especially of malleable nickel that can be rolled. The increased favor which this brilliant silver-white metal has met with recently has given rise to the question of its poisonous quality. Dr. Fleitmann does not consider the metal as poisonous. The *Polytech. Notizblatt*, formerly edited by Dr. Boettger, thus discusses the interesting question.

At the present time metallic nickel and its salts are prepared in a very pure state, the copper and arsenic frequently present in nickel ores are almost completely removed. Especial care is taken to remove the arsenic, because it would injure the color of the nickel plate.

In regard to the supposed poisonous nature of nickel, it may be remarked that nickel and copper alloys have long been in use for domestic utensils, as well as copper itself. Such vessels must of course be protected from acids and always kept clean and bright. When this is done, none of the metal passes into a soluble form. All metallic salts are more or less poisonous, even the salts of iron, to which the salts of nickel are more nearly related than to those of copper, which are indeed quite poisonous. Metallic vessels should always be kept clean, and this is true of nickel too, and then there is no need to concern ourselves about its poisonous character. It would be very desirable to have thorough and careful experiments made upon the physiological action of nickel salts when in solution. Birnbaum has shown (in *Dingler's Journal*, ccxlix. 515) that solutions slightly acidified with acetic acid, as well as the juice of sour cherries, when left for some time in nickel vessels, take up considerable quantities of nickel, which confirms the view above expressed that acid solutions should be kept as far away as possible from all such utensils and vessels.

We may add that Dr. I. M. Da Costa, has been experimenting with nickel salts for medicinal uses, and finds that they have some efficiency in doses of one or more grains, three or four times a day. It does not produce the tonic effects of iron salts, but can scarcely be considered poisonous. The bromide can be substituted for other bromides and in smaller doses (see below, p. 28).

Corn, Wart, and Bunion Cure.

MIX 16 fluid ounces of collodion with 2 oz. (avoir.) of salicylic acid, and, when this is dissolved, add 1 oz. (avoir.) of chloride of zinc. Keep it tightly stoppered and away from lights or fire.

[ORIGINAL COMMUNICATION.]

A SIMPLE SEPARATING FUNNEL.

BY CHARLES O. CURRIER.

A CHEAP and easily made substitute for the expensive glass stoppered separating funnels can be made in the following manner:

Take a glass tube four or five inches long and one-fourth of an inch in diameter. Close one end by fusing in the flame of a spirit-lamp. Three-fourths of an inch from this end file a hole with a rat-tail file moistened with oil of turpentine, in which a small quantity of camphor has been dissolved.

Fig. 1.

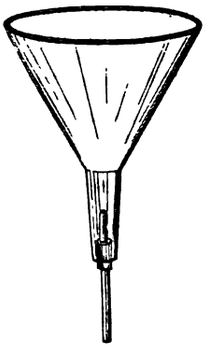


Fig. 2.

In the small end of a funnel place a cork through which a hole has been made that will allow the tube to fit tightly. Insert the closed end of the tube in the cork so that the aperture in the side shall be just below the cork. When the contents of the funnel are to be drawn off, push the tube into the funnel until the hole is just above the cork; when the heavier liquid has passed out, pull the tube down until the hole is just below the cork, this allows the air to enter and the liquid remaining in the tube to flow out. Then by pushing the tube into the funnel as before the remaining liquid can be drawn off.

For volatile liquids a glass tube (Fig. 2), two inches in diameter and eighteen or twenty-four inches long with the ends drawn down to three-fourths of an inch in diameter for convenience in corking, makes an excellent separating tube.

STONEHAM, MASS.

Migraine Crayons or Pencils.

THESE pencils consist of the solid constituent of oil of peppermint, the so-called peppermint-camphor or menthol; the better ones contain, besides, some thymol or eucalyptol, the cheaper ones some ordinary camphor. The crystalline substance is melted, and cast in form of a small cone which is packed in a wooden case and represents the migraine-crayon.

These crayons are used for drawing across or rubbing the forehead, temples, etc., which at first produces a somewhat burning, but afterwards agreeable cool sensation. The odor being likewise pleasant, it is readily understood that the crayons are much liked by ladies, particularly in summer.—*Pharm. Zeit.*

Toothache Remedy.

A CORRESPONDENT of London *Electrician* gives the following as an instant remedy for toothache: With a small piece of zinc and a bit of silver (any silver coin will do), the zinc placed on one side of the afflicted gum, and the silver on the other, by bringing the edges together, the small current of electricity generated, immediately and painlessly stops the toothache.

Sugar as a Dressing for Wounds.

PROFESSOR LUCKE, at Strasburg, and Dr. Windelschmidt, at Cologne, report favorably on the use of powdered cane sugar as an antiseptic dressing for wounds. It has been used in connection with naphthalin (equal parts), or with iodoform (1 part, sugar 5 parts), or alone. The only difficulty so far is found to be the tendency of the patients to mistrust the dressing when they discover its nature, and on the other hand, to treat themselves, and pass from under observation.

NOTE.—Was it not the iodoform or naphthalin that did the work?—ED. AM. DRUG.

Hot Water in the Treatment of Colds.

DR. GEORGE R. SHEPPARD, Hartford, Conn., says, in respect to the use of hot water as a remedial agent in the treatment of inflammation of the mucous membranes, "I have used hot water as a gargle for the past six or eight years. In acute pharyngitis and tonsillitis, and in coryza, or cold in the head, if properly used in the commencement of the attack, it constitutes one of our most effective remedies, being frequently promptly curative. To be of service, it should be used in considerable quantity (a half pint or a pint at a time), and just as hot as the throat will tolerate. I have seen many cases of acute disease thus aborted, and can commend the method with great confidence."

Calabar Bean in Constipation.

IT has been observed as a result of the poisonous action of calabar bean on animals, that there is a tetanic spasm of the muscular coats of the intestines, which resuls in the forcible expulsion of the contents. This physiological property of the drug suggested to Dr. Schaefer (*Berlin. klin. Wochenschrift*) the employment of the drug in cases of obstinate constipation (obstipation), dependent on weakness of the muscular coats of the intestines, such as may be frequently met with in women and old men. The results of his experiments have amply justified his anticipations, based on the physiological properties of the drug, severe cases having yielded to the treatment in less than twenty-four hours after its administration. His formula consists of a solution of $\frac{1}{8}$ of a grain of extract of physostigma in $2\frac{1}{2}$ drachms of glycerin. Of this six drops are given every three hours.

Dry Treatment in Otorrhœa.

DR. BURNETT (*Amer. Journ. of Med. Sci.*) holds that the syringe should be used in this disease only when absolutely necessary for the removal of accumulation, and then only by the physician. Warmth and moisture favor the fungoid growths. The home treatment should consist of drying the ear with a twisted pencil of absorbent cotton. The physician should blow into the ear dry powders. For this Dr. B. recommends the following: Triturate equal parts (grain to the minim) of boric acid and tincture of calendula; allow it to evaporate, and rub one part of this with from one to two more parts of boric acid. The author holds that recovery takes place under this treatment in one-sixth the time required by the wet treatment.

NOTE.—This is precisely the treatment some time since suggested by Dr. Samuel Sexton, of this city.—ED. AM. DRUG.

SINCE Turnbull has adopted the boric acid treatment for purulent inflammation, it has become a pleasure to him to handle such cases, so uniform has been his success in treating this class of diseases, which before had been to him only objects of despair. So says Dr. Burnett, in the *Archives of Otology*.

Solubility of the Coloring Matter of Red Wines.

It was formerly supposed that the coloring matter of red wines was dissolved out of the grape skins by the alcohol developed during the musting. Nessler pointed out that temperature influenced the extraction of the coloring matter, and Reihlen, in his method of wine-making, has shown that no alcohol whatever is necessary. F. Gantler *in the Berichte der deutschen chemischen Gesellschaft*, July 23d, 1883, now proves that the solution of the coloring matter of the skins of grapes is dependent upon the amount of tartaric acid present in the juice, and on the temperature at which the musting is carried out.—*Chemist and Drugg.*

Glycerin Ointment.

J. Mulfinger writes in the *Pharm. Centralhalle* that an ointment which protects the skin and keeps it soft is made with 225 parts of best glycerin, and 5 parts of powdered tragacanth, to which is added 5 parts of borax and 25 parts of rose water. The dry, powdered tragacanth, free from lumps, should be triturated with 50 parts of glycerin, after which the remainder of the glycerin may be added and heat applied. This mixture adheres well to a greasy skin, withdraws moisture slowly, and does not cause the irritation sometimes felt by delicate skins when glycerin is applied.

It is also an excellent excipient for pills of many kinds, and when so made they do not become hard and are easily assimilated. It also makes good extemporaneous bougies. Iodoform can be incorporated with it without the addition of other substances and the mass can be rolled into sticks no larger than a knitting needle. A thinner form is useful in dentistry for covering exposed nerves.

Camphor in Mixtures.

In using yolk of egg to secure a subdivision of camphor when it is used as enemata it has been supposed that the oil of the yolk readily dissolved the camphor. It is found by experience, however, that this is not so and that refractory lumps of camphor are apt to separate. Gum-arabic is much to be preferred and the following formula is said by the *Gazette Hebdomadaire* to form a permanent emulsion:

Camphor	1 part.
Powd. gum arabic	2 parts.
Decoction of linseed	250 parts.
Yolk of egg	No. 1.

Mixture of Musk.

The difficulty with which musk is reduced to powder, under ordinary circumstances, has induced P. Vigier to search for an improved method of preparing a mixture in which musk shall be suspended in a finely-divided condition.

This may be done by triturating musk with four times its weight of 95 per cent alcohol in a marble mortar, when it will be reduced to an impalpable powder in two or three minutes. It may then gradually be triturated with water and with syrup. When the mixture is properly made, the musk will require several hours before it will be deposited at the bottom. He quotes the following proportions as an example of such a mixture, in which the quantity of musk, however, is to be varied by the physician according to the circumstances of the case:

Musk	1 gm.
Alcohol, 95%	4 "
Syrup	30 "
Distilled water	100 "

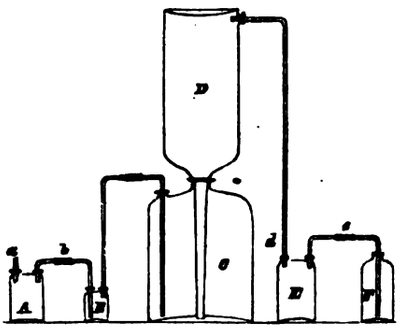
Journ. de Chim. et Pharm., 1883, 240.

APPARATUS FOR PREPARING CHLORINE WATER.

It is well known that the preparation of chlorine water is connected with disagreeable features. If a suitable work-room is not available and its preparation must be conducted in the open air, it is difficult to maintain the proper temperature, and the operation is voted to be a nuisance by the neighbors. And if it is to be done at all, it is not uncommon that the operator at once prepares a quantity sufficient to last him for some time in order to avoid a frequent repetition of these difficulties. But, even when very carefully kept, some of the stock will spoil sooner or later, and a portion of it is probably often utilized without having preserved its original strength and quality.

These drawbacks have led to the construction of the apparatus here described.

A is the generator; *B* a wash-bottle; *D* a glass-vessel ground so as to fit airtight in the neck of *C*. *E* is an empty flask into which the tubes *d* and *e* do not reach deeper than just to the neck. Finally *F* is a bottle with solution of potassa, or milk of lime.



When using the apparatus, *C* is filled with distilled water, hydrochloric acid is poured into *A*, chlorate of potassium added to it, and the stopper *a* (of *A*) firmly inserted. The generated gas passes through the wash-bottle *B* and the connecting tube *c* into the water contained in *C*, pressing this upward into *D*. The pressure thus produced in *C* facilitates and hastens the saturation of the water with gas.

As soon as no more gas is evolved, *e* is closed by a pinch-cock, *d* is disengaged from *D*, and the contents of the two vessels *C* and *D* (after the latter are stoppered) shaken together until all free gas is absorbed.

When started, the apparatus may be kept going, if necessary, all night. For this reason, the vessel *E* is inserted to receive any liquid which might be sucked over from *F* in case a vacuum should be produced in *D* after complete absorption of the gas.

If the stoppers and joints are tight, a faint chlorine odor is perceptible only toward the end of the operation. The stoppers should be of india-rubber; or, common corks may be used if soaked in paraffin.

If the vessel *C* has a capacity of 1 liter, a quantity of 24 gm. of potassium chlorate and 240 gm. of hydrochloric acid (that is, 1 oz. of the salt to ½ lb. of the acid) will be sufficient to produce the requisite amount of gas.

This apparatus may also be used for the preparation of solution of hydrosulphuric acid (sulphuretted hydrogen water).—Johann Hertel in *Pharm. Zeitsch. f. Russl.*, Oct. 30th, 1883.

Cream Mead.—A very agreeable drink may be prepared for convalescents as follows: Dissolve three pounds of white sugar in half a gallon of boiling water, and while cold add three ounces of tartaric acid previously dissolved in a pint of cold water.—*N. Y. Med. Times.*

Notes on Santonin.

As a supplement to the note on the administration of santonin by Dr. L. Lewin, in our last volume, p. 240, we may state here that Alexander Neuman* has made physiological experiments upon animals, which show that santonin is completely absorbed in the upper part of the intestinal canal except when it is given dissolved in an oil, for instance, castor oil. Indeed, even in this case, some of the santonin is absorbed in the stomach; yet the absorption is so much retarded that the largest portion has time to reach the lower intestine, where the worms lodge. The same author also found that santoninate of sodium is more quickly absorbed in the stomach—which might have been expected—than santonin itself.

Some interesting observations were made regarding the chemical behavior of santonin.

Pure santonin is not colored red by aqueous solution of potassa. But when santonin has been taken internally, and is eliminated through the urine, the latter assumes a red color both with aqueous and with alcoholic solution of potassa. A portion of the santonin is also eliminated per rectum as a rose-colored substance which is decolored by aqueous potassa and reassumes its tint when treated with hydrochloric acid.

Alcoholic solution of potassa is usually assumed to be a distinctive test for santonin, as it strikes with it a red color. Dragendorff had already noticed that this color reaction is more pronounced after the santonin had become yellow by exposure to light. To test the difference of sensitiveness of the test, Neuman dissolved some santonin in alcohol, and evaporated small portions on watch-glasses. When tested immediately on evaporation with alcoholic potassa, the smallest quantity of santonin recognizable through a red tint was 0.002 gm.; but, after the residues had been exposed to light for two days, as small a quantity as 0.0005 gm. could still be recognized.

Neuman even goes so far as to assert that alcoholic solution of potassa is no reagent at all for *unaltered* santonin. Taking in consideration the sensitiveness of santonin to light, and the probability that most specimens of santonin heretofore used to study the reactions had at some time or other been exposed to light, it would seem as if this assertion were well-founded.

Another characteristic reaction for santonin, first pointed out by Lindo,† and afterwards modified by Schauenstein,‡ has recently been studied by Dragendorff, and is directed to be performed as follows: Pure concentrated sulphuric acid is diluted with half its volume of water; and a solution is prepared containing 0.065 (or 1 grain) of ferric chloride (Fe_2Cl_6) in 100 parts of distilled water. The santonin sample is heated over the flame on a watch, glass, with a few drops of the abovementioned sulphuric acid until it becomes yellow. After cooling a short time it is mixed with a few drops of the solution of ferric chloride. If there were present somewhat considerable traces of santonin, a cloud is produced at the point of contact of the two liquids. On now again heating, the liquid clears up and assumes a handsome violet color, being bluish-violet with larger and reddish-violet with smaller quantities. As little as 0.0001 gm. of santonin still showed the reaction. The clear violet liquid after a while becomes cloudy. If too high a heat be applied, or too much ferric chloride be added, a turbid precipitate is at once produced, or dark flakes are

---

*Der forensisch-chemische Nachweis des Santonin, und sein Verhalten im Thierkörper. Inaug. Diss. von Alexander Neuman. 8vo, Dorpat, 1883. (Received from Prof. Dragendorff.)

† Pharm. Journ., viii., 464.

‡ Maschka, Handb. d. Gericht. Med., ii.

separated. Santoninate of sodium* also produces this reaction.

To a certain extent, this reaction has a feature opposite to that of the preceding—namely, its intensity is diminished when the santonin is exposed to light, while in the case of alcoholic potassa this exposure intensifies the color.

AN AUSTRALIAN DRUG-STORE.

The Australian Chemist and Druggist describes the store of Messrs Wm. Ford & Co. (Swift & Reed), of Melbourne, Australia, and says:

"The annexed engravings represent the premises as they now appear, after extensive additions and improvements lately completed, and we think we may fairly state that they are the most attractive and convenient of the kind in the colonies.

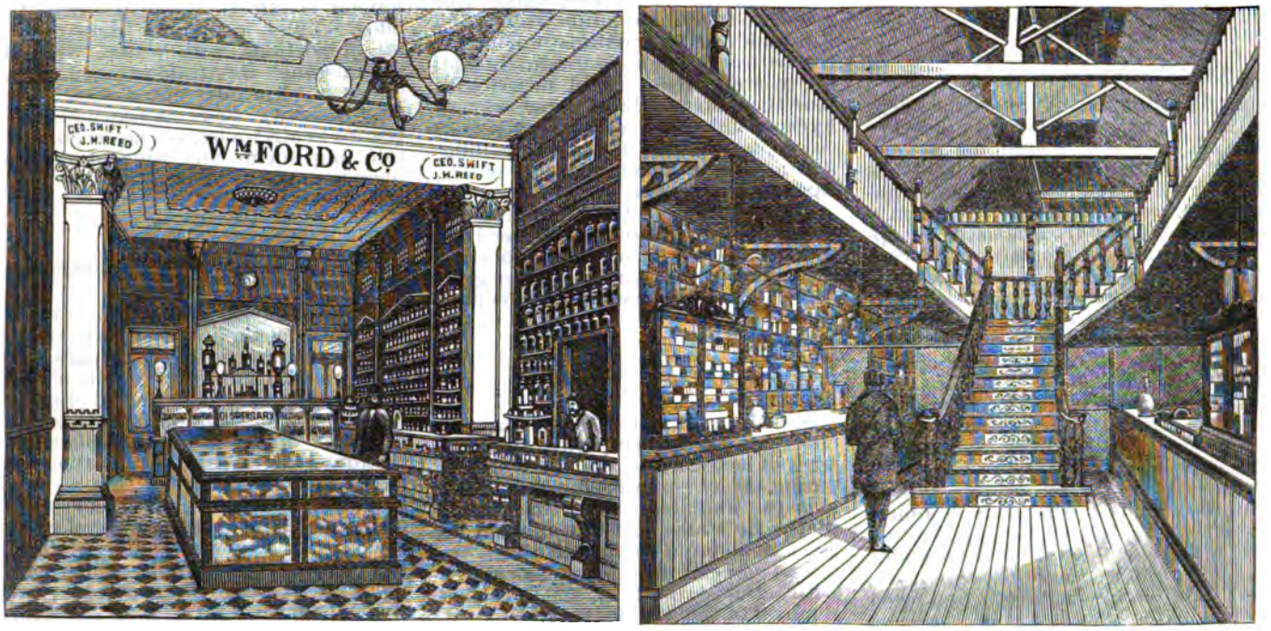
"The first section, or Retail and Dispensing Department, covers an area of forty by twenty feet. The arrangement of the counters and Dispensing Department, as shown in the engraving (from a photograph), is complete with the most modern appliances and conveniences necessary to facilitate the working of these two departments.

"The back section, or Wholesale Department, Store and Laboratory, is an extension of the same floor, and covers an area of sixty by thirty feet, approached by two pair of folding-doors leading out of the front section, and also by an independent entrance on the north side from Swanston-street. On this floor the clerks' and private offices are also located, being neatly partitioned off from the main body with figured glass sashes. The laboratory, too, occupies the western end of this section, and is separated by a lattice-work frame.

"The balcony, approached by the central staircase, is used for the storage of Druggists' Sundries, Chemical Glassware, American Herbs, and the lighter class of drugs, accommodation being also provided for the lighter class of labor employed in putting up Proprietary Articles and Perfumes.

"From the west end of the main floor, and underneath the staircase we descend into the cellar, which underlies the whole extent of the back section. This is really an invaluable addition, in a climate like Victoria, being set apart for the storage of acids, oils, bottles, and bulk goods. Provision is also made here for the reception and despatch of goods from an entrance into the yard, thence to Howie's lane, off Little Collins-street, the goods being passed to their respective floors by a Patent American Lift.

"In this section there is also a well-arranged set of bottle racks and washing troughs for the less scientific but very essential auxiliary to the successful working of the business."



A Melbourne Drug-store.

*The author calls this substance *natrium santonicum*, in place of *n. santoninicum*, which is not correct. See New Rem., 1883, p. 29.

Colors for Show Bottles.

Mr. G. C. Close, of Brooklyn, at a meeting of the Kings Co. (N. Y.) Association, speaking of colors for show bottles, said: For a green solution he dissolves a little pure nickel in nitric acid and reduces with water to the desired depth of color. In so dissolving metals, care should of course be exercised in keeping the nitric oxide fumes from entering the room. By using a five-cent piece, enough copper is introduced to form a blue-green. He regarded a solution of potassium bichromate, rendered lemon yellow with sodium hydrate, as a satisfactory color for daylight.

Dr. Sheets said, that by dissolving one or two old copper cents in nitric acid, diluting with water and adding common salt, about one pound to a three-gallon bottle, or better, adding the salt till the desired green is produced, a very lasting color is obtained. A bottle in his possession had stood ten years without precipitation.

Mr. L. E. Sayre remarked that he had a solution so prepared, which has kept twenty years and seems to be improving.

Mr. J. L. Creuse said that by adding hydrochloric acid to a solution of copper sulphate, sufficient to turn the blue green, a very satisfactory color may be prepared.—*Weekly Drug News.*

Administration of Quebracho.

Dr. J. M. Mariani y Larrion, of the Princess Hospital, Madrid, speaks highly of Quebracho, after a trial in forty-four varied cases (*Bull. Gén. de Thérapeutique*), and prefers the following formula:

℞ Ext. quebracho alc. (or hydro-alcoholic tincture)	2 to 4 gm.
Aquæ	150 "
Syrupi	30 "

M. Sig. One-fourth to be taken at a dose, to be repeated every 2 hours.

A syrup of quebracho was also employed in doses of two spoonfuls every second hour; and the extract or tincture was used, in doses of from .50 to 4 grammes.—*Phila. Med. Times.*

Quinidine and its Allies.

M. Laborde, after an exhaustive study of the physiological action of quinidine, finds that it agrees with cinchonine and cinchonidine in producing convulsive movements of the body, while quinine appears incapable of doing so. Cinchonine and cinchonidine possess the convulsive property in a more marked degree than quinidine, which therefore holds a middle position between the alkaloids just mentioned and quinine; but its affinities are stronger on the side of the former group. An impure specimen of quinine gave the convulsive reaction, thus proving the presence of the other alkaloids, and establishing a physiological test for the purity of these substances.—*British Med. Journal.*

Quinine Intoxication.—A correspondent of the *Pharmaceutische Post* says that as a remedy for the relief of quinine intoxication, as he calls the over-stimulation caused by quinine in excessive doses, he has used ergot in several cases, and finds that to neutralize the cerebral effect of fifteen grains of quinine at least twenty grains of powdered ergot, or fifteen grains of ergotin, must be employed. With this remedy the most annoying tinnitus may be entirely removed during the administration of quinine.—*Quinologist.*

Administration of Quinine.

The following summary gives the pith of notes on the admininistration of quinine, contributed by Dr. David Young, of Rome, to the *London Practitioner:*

1. Never to give quinine in antipyretic doses in cases where the bowels are confined and the secretion of urine is scanty.

2. In cases where it is being administered, and an increase of dose is desirable, this may be safely done, if the skin, bowels, and kidneys maintain their normal functional activity.

3. In many cases of remittent and intermittent fevers, the combination of the drug with chloride of ammonium, or a salt of potash or soda, is likely to be more easily tolerated, as well as more useful, than if it be administrated in a pure form.

4. During the administration of quinine, should a headache come on or increase in intensity, the case requires the most careful attention.

The French Pharmacopœia is reported to be in press, and is soon expected to appear.

"Maple Sugar."

It is said that the flavor of maple syrup may be communicated to cane or glucose syrup by tincture of guaiacum deprived of its resin by precipitation by water. A great deal of the maple sugar and syrup now sold is said to be nearly pure glucose prepared in this way.

The Preparation of Rupert's Drops.

It is stated in chemical text-books (for example, Roscoe and Schorlemmer's Chemistry, Vol. II., Part 1. Miller's "Elements of Chemistry," Part II.) that Rupert's Drops may be obtained by allowing molten glass to fall into cold water. I find that it is almost impossible to manufacture the drops in such a manner. I have used cylinders of different lengths with water of various degrees of temperature, with the same result, the glass almost invariably breaking up into a number of small fragments directly it strikes the bottom of the cylinder. The drops may, however, be very easily obtained by using a saturated solution of ammonium chloride—freshly prepared with cold water (6° to 8° C.) contained in a cylinder about 18 in. long, the increased specific gravity and cold insuring the almost complete cooling of the glass before it reaches the bottom of the cylinder.—I. Taylor *in Chem. News.*

The Preservation of Leeches.

The proposition of a correspondent of the *Pharm. Zeitung* to preserve leeches in water containing a very small quantity of salicylic acid has elicited the unqualified approval of another correspondent who, living in a small place away from sources of supply, has been for years suffering through losses incurred by the death of many leeches which he has been compelled to keep in stock. On reading the above method, he first tried it with *one* leech, putting it, on May 18th, into a small glass with about 1½ oz. of water and 5 drops of a ½-per-cent solution of salicylic acid. On about Sept. 1st the leech was still healthy and lively, although the water had not been changed at all. A second experiment was also made during the summer, more than 100 leeches being put into a pot, with 4 or 5 liters of fresh water and 0.1 gramme (1½ grains) of salicylic acid. The leeches kept fresh, preserved their sucking power, and at the time of writing the report (about three weeks after putting them in the water) not a single one had died. He therefore strongly recommends the method to his confrères for trial.

Cement for Milk Glass.

Waechter describes the following method of preparing a white enamel for joining milk glass:

Melt together three parts of red lead, two of white sand, and three of crystallized boracic acid in a Hessian crucible. The melted mass is poured out on a plate of metal and finely pulverized. This is mixed with gum tragacanth and applied to the glass and the pieces pressed together. Finally, it is heated in a muffle, but not enough to entirely melt the enamel, but only to soften it enough to make it unite with the glass.

Anthracene has been found by Dr. Tommasi to possess a new property, namely, a sensitiveness to light, which will doubtless prove of value. Anthracene on exposure to light acquires different physical and chemical properties without any change in its composition. If a cold, clear, saturated solution of anthracene in benzol is exposed to the direct rays of the sun, it becomes turbid and deposits crystals, which have received the name of paranthracene.

Bromide of Nickel.

Dr. DaCosta, in the Philadelphia *Medical News* of Sept. 29th, advocates the use of a new salt, bromide of nickel, in epilepsy.

He gives doses of five grains in form of pill or syrup, three times a day, gradually increasing the dose to ten grains, three times a day.

A practical formula for the pills is as follows:

℞ Bromide of Nickel	gr. lx.
Powd. Althæa	gr. vi.
Extract of Gentian	gr. vi.
Alcohol	q. s.

Mix and make 12 pills.

For syrup:

℞ Bromide of Nickel	gr. 160.
Glycerin	℥ ss.
Water to make	℥ iv.

Dissolve the nickel in the water and add the glycerin.

Throw eight ounces of loaf sugar into a quart glass percolator and pour on the solution; pour back the syrup until the sugar is entirely dissolved, and make the measure eight fluid ounces with simple syrup.

This makes a handsome, green colored, stable syrup, containing five grains to two teaspoonfuls.

Bromide or hydrobromate of nickel can be easily made by gradually adding to carbonate of nickel, mixed with four times its weight of water, enough hydrobromic acid until effervescence ceases, heating the mixture to boiling, and adding a small quantity of the carbonate in excess.

This solution of the bromide is filtered and evaporated on a water bath to dryness, in a porcelain evaporating dish, stirring constantly with a glass rod. It should be kept in tightly corked bottles.

Syrup of Lactucarium.

Jos. W. England considers the officinal process for preparing fluid extract of lactucarium, and that of preparing the syrup by means of the fluid extract, troublesome and unsatisfactory. He states that the officinal directions to have the lactucarium "in coarse pieces," when first macerated with ether, result in an imperfect removal of the inert lactucerin.

He proposes the following as an improvement on the officinal process for syrup of lactucarium:

Lactucarium (Allen's)	1 troy oz.
Powdered Quartz	2 troy oz.
Magnesium Carbonate	2 drachms
Sugar, granulated	13 troy oz.
Ether	½ fl. oz.
Glycerin	2 fl. oz.
Diluted Alcohol, Water, of each, a sufficient quant.	

Reduce the lactucarium to a fine powder, with the powdered quartz, macerate for several days, with the ether, decant as much as possible of the ethereal solution, add 2 fl. oz. of water, and remove the excess of ether, by cautious evaporation. When this has been done, add to this liquid 2 fl. oz. of glycerin, 8 fl. oz. of diluted alcohol, 1 troy oz. of sugar, and 2 drachms of magnesium carbonate.

Place in a tightly-stoppered bottle or flask, and digest in a water bath, at a temperature not exceeding 130° F., for twelve hours. Displace in a glass funnel through absorbent cotton, evaporate the percolate to 6 fl. oz., make up to 10 fl. oz. with diluted alcohol, filter, and add 12 troy oz. of sugar to the filtrate, dissolving with the aid of heat. Lastly add, when cold, enough syrup to make the finished product measure 1 pint.

Powdered quartz is used to reduce the concrete juice to a fine powder. It cuts and disintegrates far better than sand or any similar siliceous substance, and thus presents the drug in a more fit condition for solvent treatment.

Lactucic acid and lactucopicrin are both pretty soluble in water, and are obtained in solution when so treated. If not wholly dissolved, they are taken up in the further treatment with diluted alcohol and glycerin, which also dissolve lactucin, one of the bitter principles, but which is sparingly soluble in water alone. The use of magnesium carbonate is to serve several purposes. It combines with any free acids present, to render the liquid neutral, greatly lessens the excessive bitterness, and decidedly increases the activity of the solvents in the amount of the principles extracted. It, lastly, is valuable as a clarifying agent, when displacement is in order.

The purpose of prolonged digestion is to secure perfect solution and coagulation of all gum, resinous, or albuminous matter present. The evaporation of the percolate down to 6 fluid ounces is to prevent undue excess of alcohol in the liquid, while the last addition of diluted alcohol is to have the syrup definite in alcoholic strength to insure preservation.

The syrup is a clear, transparent reddish-brown liquid, almost black, having a strong, decidedly narcotic odor, similar to opium. It mixes, in all proportions, with water, without diminishing its transparency, possesses a pleasantly-bitter taste, free from acridity, and, on continued exposure to air, undergoes no decomposition, nor forms any fungoid growth upon its surface.—*Am. Journ. Pharm.*, 1883, 593.

Syrup of Calcium Lactophosphate.

Several writers, including one of the editors of this journal, have heretofore recommended to prepare the above-mentioned syrup by dissolving lactate of calcium with the aid of phosphoric acid instead of following the old plan of dissolving phosphate of calcium in lactic acid. R. Rother has lately likewise advocated this method (*Am. Journ Pharm.*, 1883, 607) and, owing to the fact that lactate of calcium is not everywhere readily obtained, has proposed a formula which provides for its extemporaneous preparation when the syrup is to be compounded.

The proportions given by the author are such that the relative proportions of calcium phosphate and lactic acid contained in the finished syrup shall be one molecule of the former of the former to six molecules of the latter (instead of four molecules, as it happens to be in the officinal syrup):

	Parts.
Calcium Carbonate	150
Lactic Acid, sufficient, or ab.	360
Phosphoric Acid, 50%	196
Sugar	6,545
Water, sufficient to make	10,908

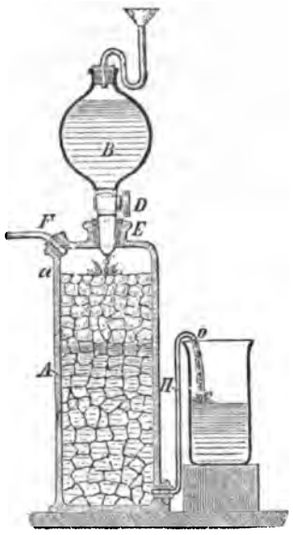
Mix the lactic acid with 1500 parts of water, and gradually add the calcium carbonate. If the mixture does not become clear, warm it gently and add lactic acid drop by drop, until a transparent solution is obtained. To this add the phosphoric acid previously mixed with 1,500 parts of water together with enough more water to make the whole weigh 4,363 parts. Then add the sugar, and when this has dissolved, with frequent stirring, filter the syrup through paper.

Naphthol in Scabies.—Guerin applies an oinment made by dissolving ten parts of naphthol in five parts ether and mixing it with the 100 parts of vaseline. Secluded from the air it will keep a long time.

A NEW GAS GENERATOR.

THE apparatus here illustrated is chiefly intended by Dr. P. Seidler for the generation of carbonic acid gas, hydrogen, or hydrosulphuric acid in laboratories.

It consists mainly of the cylinder *A*, the acid reservoir *B*, and the ascending tube *H*. When carbonic acid gas is to be produced, the cylinder is filled, up to about the mark *a*, with small pieces of marble, and enough concentrated solution of chloride of calcium added, through *E*, until it flows out at *o*. The reservoir *B* having been filled with hydrochloric acid, it is tightly inserted in the neck *E* and the faucet *D* opened so that a fine stream of the acid may flow upon the pieces of marble. The gas will be delivered through *F*, and a neutral solution of chloride of calcium will continue to flow off through *o*.



The strength of the current of gas may be regulated at will by means of the faucet *D*.

Most of the gas is generated in the upper layers in the cylinder. Near the bottom it is almost imperceptible.

Similarly, the apparatus is employed for the generation of hydrogen or of hydrosulphuric acid—zinc, sulphuric acid and a concentrated solution of sulphate of zinc being used in the former case, while ferrous sulphide, sulphuric acid, and a concentrated solution of sulphate of iron (ferrous sulphate) are employed in the latter case.—*Zeitsch. f. Anal. Chem.*, 1883, 529.

Hints about Corks.

A CORK should always be as far as possible adapted not only to the bottle or jar it is intended to "stop," but also to the fluid or substance intended to be preserved therein. Thus very volatile liquids can be kept far better without material loss with the aid of a really good cork properly prepared for its work than if a glass stopper of the average badly-fitting kind be employed. We will presume that everybody nowadays knows how to soften corks by "pressing" and boiling, etc., and also how to select good ones. If good sound corks, after being thoroughly "soaked," be immersed for a few hours in water at 130° F., containing about two and one-half per cent of gelatin and four or five per cent glycerin, and are then taken out and dried carefully, it will be found that the loss of any volatile fluid, such as chloroform, ether, or petroleum spirit, kept in bottles stopped with corks so treated will be comparatively insignificant.

Corks are discolored and rendered friable by various chemical solutions, nitric acid, tincture of iodine, and the permanganates being amongst the worst offenders in this respect; they may be protected, and rendered proof against the action of acids, alkalies, and oxidizing agents, by (after "softening" in the usual way) drying them and allowing them to digest at about 120° to 140° F. in a mixture of seven parts of vaseline and two parts of white paraffin wax until, when pressed under the warm fluid, no air bubbles are emitted from them. After being gently wiped and allowed to cool, the corks are ready for use, and they will then be found to resist corrosive liquids in the cold.—*Monthly Magazine.*

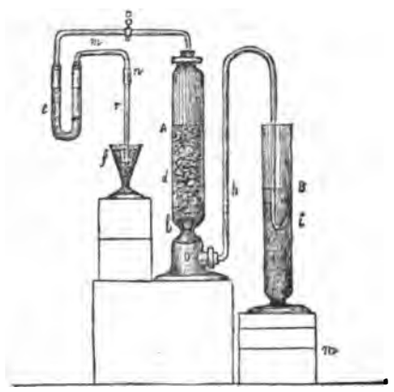
Remedy for Comedones.

THE remedy is acetic acid which is conveniently applied in the following way: make an ointment of kaolin (potter's clay), four parts; glycerin, three parts; acetic acid, two parts. Cover the part affected in the evening; after several days most of them come out by washing with pumice soap.—*Am. J. Phar.*

SULPHURETTED HYDROGEN APPARATUS.

JOSÉ R. DE LUANCO recommends an apparatus constructed as shown in the cut, for the generation of hydrosulphuric acid. His principal object was to avoid, after the receding of the acid from the generator, the influence of the oxygen of the air upon the wet fragments of ferrous sulphide, which are rapidly coated with a layer of basic salt.

A is the generator, closed below by a loosely fitting glass-ball (at *b*), upon which small glass-pearls are placed, and upon these the ferrous sulphide. The bottom part bears a tubulure, to which is attached a siphon (the outer end of which is slightly turned up) which is made to dip into a tall cylinder containing the acid. The generator bears in its neck a cork, carrying a delivery tube provided with a stopcock and finally ends in the delivery piece *n* which is made to dip into water.



To set the apparatus going, the cylinder *B* is raised by blocks until the level of the acid stands higher than the mark *d*. Then by sucking at *n*, the acid will be siphoned over. When the development of gas is to be discontinued, the faucet at *c* is closed, or rather rapidly closed and opened in succession, whereby the pressure of the remaining gas drives over the excess of acid into the cylinder without emptying it entirely. The cylinder is then placed so that the level of acid is below *d*, that is, below the line at which the glass-pearls in the generator are in contact with the pieces of ferrous sulphide.

One of the editors of the *Zeitsch. f. Anal. Chem.* (1883, 554) from which the above is taken, suggests that the suction at *n* may be rendered superfluous by fixing a cork in the neck of the cylinder *B*, inserting a short glass-tube, and blowing into it. This cork can easily be so adjusted that it will not interfere with a rapid raising or lowering of the cylinder *B*.

Sulphide of Zinc in Lupus.

DR. DUHRING, of Philadelphia, recommends the following formula as valuable for a wash in lupus erythematosus:

℞ Zinci sulphatis,
Potass. sulphidi..... āā ʒ ss.
Aquæ rosæ ..... ℥ iiiss.
Alcohol..... ʒ iij.

with the occasional addition of a few minims of glycerin.—*Phil. Med. Times.*

Cancer Remedy.

A WRITER in the *Br. Medical Journal* speaks highly of "cleavers" (*Galium Aparine*)* as a cancer remedy. He claims that a local application reduces the size and relieves the pain of the cancer, and writes that in Hertfordshire it is used also internally. The mode is to give an aperient and enjoin a simple diet; the patient to take ℥ v. of the juice of the plant twice daily. At the same time an ointment of the juice should be applied to the sore, frequently renewed. Though recovery is gradual, it is claimed that one ulcer was healed in three months.

Perosmic Acid.

THIS is a new remedy employed by Professor Winiwarter in cancerous and scrofulous swellings. It is used by injecting daily three drops of a one-per-cent solution of the acid, which treatment causes the tumor to soften and decrease in size, the dead tissue is thrown off, and disappears in about a month. No curative effects upon cancer itself have been observed from the remedy.

Hippurate of Sodium.

HIPPURATE of sodium is said to be now attracting attention as a remedy for diseases in which the excretion of uric acid in excess forms a prominent feature. A few months ago, Dr. Garrod called attention to the fact (*Lancet*, April 21st, p. 672) that solutions of the alkaline hippurates, when added to and allowed to remain for some hours with those of urates, caused the disappearance of uric acid, so that it could not, after the addition of hydrochloric acid, be detected either by the microscope or by the murexide test. This action of hippuric acid upon uric acid is supposed by Dr. Garrod to take place in the urinary organs of herbivorous animals, since uric acid is found in the urine of suckling calves, but not when the animals feed entirely on vegetable food, hippuric acid being then found in the urine instead of uric. The urine of herbivorous animals is generally alkaline, whilst that of man is acid. Dr. Garrod therefore prefers the use of alkaline salts of hippuric acid, giving also some alkaline citrate if there be abnormal acidity of the urine. He states that in cases of gout, gravel, and calculus he has obtained great advantage from the use of hippurate and benzoate of sodium, preferring the salts of potassium and lithium when he wishes to increase the quantity of the urinary excretion. Benzoate of sodium has a similar action to the hippurate, as might be expected from the fact that benzoic acid when absorbed from the stomach takes up glycerin, and becomes converted in the system into hippuric acid, and is thus thrown out in the urine. The use of a vegetable diet which would give rise to the formation of benzoic or hippuric acid in the system might, Dr. Garrod thinks, be devised for those who suffer from the diseases above mentioned.—*Pharm. Journal.*

* Another common name is goose-grass.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 2. WHOLE No. 116.

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

FEBRUARY, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00

SINGLE COPIES, - - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & CO., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

ATTENTION has been drawn to the fact that, by distilling birch-bark with water, an essential oil is obtained, which is, to all intents and purposes, identical with true wintergreen oil, differing only by the absence of a peculiar terpene (probably only lost through bad manipulation) in the former, and by their different specific gravities.

It has also been found, during the past year or so, that oil of wintergreen is an excellent substitute for salicylic acid as a remedy for rheumatism, the results obtained with it at Bellevue Hospital (New York) showing that it is even preferable to the latter, as it has less tendency to disarrange the stomach.

Not long ago, it was observed that the oil of wintergreen administered to the patients appeared to be weaker and less effective than formerly. After considerable trouble, it was ascertained that the "oil of wintergeeen" received for some time past was the commercial oil always supplied when simply "oil of wintergreen" is demanded. Most or all of this oil has heretofore been consumed merely as a flavoring agent, particularly by confectioners, and the fact that it is used as an internal medicine has not yet had time to extend its purifying influence back to the original manufacturer or shipper.

When this apparent deficiency in the oil was noticed, and its origin ascertained, efforts were made to obtain real, genuine oil of wintergreen (made from gaultheria), and this was accomplished without much difficulty. Every respectable wholesale house should hereafter be in a position to offer the real oil of wintergreen for internal use. As no chemical tests are yet known which can distinguish the genuine from the false oil, reliance must be placed upon the character of the houses who deal in it. It requires special precaution to assure one's self whether an "oil of wintergreen" offered by the *distillers* in the country is genuine or not, since many either substitute the oil of birch for it entirely, or at least mix the two oils. But we know that the genuine oil *can* be had.

So far it appears that the true oil of wintergreen has a more prompt action and requires to be given in smaller doses than oil of birch.

THE State Board of Health, Lunacy, and Charity, of Massachusetts, has inaugurated a war against adulterators of drugs. For the present, the Broad appears to confine itself to wholesale dealers, who have, perhaps, better facilities for ascertaining the purity and strength of the preparations they sell than the retailer. At all events, it seems to be quite proper that a beginning be made at the wholesale end of the live.

The cases so far brought into court referred to the sale of tincture of opium below the standard of the U. S. Pharmacopœia, samples of which tincture had been assayed by Prof. Davenport, of the Board of Health.

Two firms were convicted of the offense and fined; both appealed to a higher court. Another firm escaped conviction only by the fact that the judge decided that the salesman who had sold the tincture was not an authorized agent of the firm. Other prosecutions are shortly expected, and if the efforts of the Board of Health are continued, in a spirit of fairness and impartiality, much good will no doubt result to the profession and the public.

In this connection it deserves to be mentioned that, at a recent monthly meeting of the Boston Druggists' Association, a resolution was adopted, asking the State Boord of Health "to send an official notice to any druggist who shall dispense an article in violation of law, and that prosecutions be made only when the article is sold after such notice has been sent." It seems to us eminently just and proper that this course should be adopted, as it will remove one of the most serious objections to a successful administration of the law, although it may not be requisite in law.

IN our last issue we published an abstract of an official report of the United States consul at Liege and Verviers, directed to the Secretary of State, in which the writer draws the attention of manufacturers of patent medicines to the fact that, in his opinion, there is not a better place for disposing of their wares than Belgium. Want of space prevented us from placing on record our own views and comments at that time, but we cannot let this number pass out of our hand, without expressing our surprise that a search after a market for American patent medicine should be considered one of the legitimate functions of a United States consul. It is humiliating to see the efforts made by the enlightened portion of the press and of the public, to curtail the promiscuous sale of nostrums, offset by the officious and official action of a person accredited abroad by the State Department who seems to forget that he is actually offering an insult to the people among whom he resides, by publicly declaring them willing and anxious to swallow and pay for all the trash that may be sent over to them. Surely, there are hundreds of other commodities far more suitable and acceptable to these people, if they were really so unsophisticated and gullible as our consul paints them. We shall probably soon hear of some of our consuls accepting an agency for the Kentucky or Louisiana Lottery, or for an oleomargarine factory, or some similar enterprise flourishing amongst us.

IN spite of the efforts of the Executive Committee of the National Retail Druggists' Association to enlist co-operation, there is, we regret to say, but little enthusiasm shown outside of the Committee itself, if we except one writer who is in no sense a retailer, and whose effort in this, as in other directions, impress one quite favorably with his skill in attracting public attention.

In Philadelphia, where the evils of rate-cutting are said to be very apparent, a well organized and earnest effort to form a local protective association has completely failed, and the proposition to organize a stock company in this city to cut out the "cutters" has, apparently, resulted in leading the general public to purchase fewer "patents" in anticipation of still lower prices when the Association stores are opened.

The feeling which now appears to be increasing among pharmacists is in favor of restriction of business to legitimate pharmacy. Some of the most successful retail establishments in this city (excepting those which surreptitiously deal in alcoholic drinks) are those which have suppressed, so far as possible, all business of other kinds, and developed, instead, special lines of manufacturing, in connection with a

carefully-conducted prescription trade. On the other hand, we know of one establishment which in former years was a favorite among physicians and whose label on a package was equivalent to a guarantee of the best pharmaceutical skill and excellence of materials. Of late, however, a change in the proprietor and a disposition to trade on the strength of former reputation, and at the same time to cut prices and push the sale of nostrums, has nearly estranged from it the confidence of physicians and driven away much of its most profitable business.

A FEW of our subscribers have expressed their regret that some of the reading matter of the AMERICAN DRUGGIST is so mixed with the advertisements that they will be unable to separate them, as formerly could be done. This speaks more highly for the value of the "outside matter" than we had supposed it would merit, and leads us to say that a little observation will show them that, while the matter on the advertising pages may, at the time of its publication, be of interest—like much of the reading matter contained in the daily or weekly papers—it is not, like that in the body of the journal, likely to be of permanent interest or worthy of being bound up and preserved for future reference. The Editors exercise some care in selecting for the main portion of the journal that which will prove of future as well as of immediate benefit to its readers, and will make liberal use of the columns adjoining the advertisements to give space for items of more ephemeral character. If, however, any reader should think it desirable to preserve an occasional item published there, he will usually find each article complete within the limits of the column; it will never have other reading-matter on its back, and on the side next to the edge of the leaf is a broad margin on which can be pasted portions which may run over into another column; precisely the arrangement, in fact, which will enable him to place the whole in a scrap-book without the necessity for leaving any portion loose so that the back of the cutting may be accessible, as would be the case with extracts cut from any other drug journal.

We will, moreover, again remind our subscribers that, with every leaf added to the advertising pages, *they* will get, in future, another column of this reading-matter. We can also promise them that we shall consume very little space in the body of the journal with editorial fault-finding, complaints that other journals take our articles without credit, advertisements of books which the editors or publishers sell, reminders to delinquent subscribers, etc. And we hope that we may not often be called upon to enter into such explanations, like the above, of matters which should be understood with the exercise of a little attention.

THE general principles adopted by the Commission for the elaboration of the Cuban pharmacopœia show a desire to bring the work up to the demands of the period, and will nearly all meet with approbation. Some of them, however, are not quite acceptable to our way of thinking and our experience, notably the resolution to divide the work into three parts: 1. Medicinal substances, such as they are obtained from nature. 2. Chemicals of definite composition. 3. Simple or compound remedies prepared from the above. We are decidedly of the opinion that a single alphabetical sequence is much more useful and advantageous. Everybody in the United States is glad that the old division into "Primary" and "Secondary List" and "Preparations," of former pharmacopœias is abolished.

Dr. Ramon Botet, to whom had been assigned to the duty of examining the contents of the officinal Spanish pharmacopœia, with a view of proposing the abolishment of antiquated articles, made a report in consequence of which not less than 315 articles of the Materia Medica and 232 pharmaceutical preparations are to be dismissed.

We consider this a great advance, and by perusing the report contained in the *Repertorio de Farmacia*, of December, 1883, we see that there is a real spirit of progress and emulation plainly visible in this work. If carried through with the same spirit, the result will be of great value to Spanish pharmacy and will extend its influence to the mother-country. It is to be hoped that the "tail will wag the dog" and wake it up.

Thefts in the Drug Trade.

SPEAKING of the considerable losses by theft on the part of dishonest employees, the *Oil, Paint and Drug Reporter* lately remarked that there are four places in this neighborhood where such goods are principally disposed of, two of them being in New York, one in Brooklyn, and one in Williamsburg. Illustrating the coolness with which some of the thieves carry on their business, it is said that recently a large box stood in the doorway of a New York drug establishment ready for shipment and containing many valuable orders for a western house. During the morning a truck backed up; the driver with some difficulty placed the box on board in the presence of a member of the firm and drove off. Subsequently inquiry was made about its shipment and an investigation revealed the fact that it had been stolen while a member of the firm, who thought that the truckman belonged to the establishment, watched the proceeding.

Fraudulent Norwegian Cod-Liver Oil, so it is said, has of late been sold in considerable quantities in New York by persons who make use of empty barrels formerly containing oil which was genuine. The spurious oil is said to be a mixture of Newfoundland and American cod and seal oils. One well-known New York house, who have made a specialty of their oil, have long been reported to derive their supply from the "mossbunkers" about the eastern end of Long Island.

Quinine in French Hospitals.—A Frenchman was convicted last year of putting French cinchonidine into pure sulphate of quinine of foreign manufacture, and then selling it as pure sulphate of quinine to the "Assistance Publique," for use in the hospitals. This body has lately stipulated that in future only sulphate of quinine of French manufacture will be accepted, and the *Repertoire de Pharmacie* (says the *Chemist and Druggist*) remarks, "We can only applaud this action, which is as intelligent as it is patriotic!"

Injury to the Liebig Statue at Munich.—On the night of November 7th, some unknown person applied some corrosive fluid to the statue of Liebig at Munich and occasioned great injury, the fluid eating into the marble. The injury effected has been examined by a scientific commission, including Baeyer and Pettenkofer, and they believe that it was accomplished by a mixture of strong acids applied by a syringe. They believe that the damage done can be repaired; but they say it will be a long time before the stains can be removed. The police offer a reward of 1,000 marks for the discovery of the perpetrator of this outrage.

THE British Mint has discarded carats and carat-grains, and will hereafter indicate the fineness of precious metals by decimals, in accordance with the usage long since adopted by the Continental mints.

THE annual death-rate of St. Peters burg is over 51 per thousand.

Correction.—A San Francisco correspondent calls attention to an error in an article on page 15 of this JOURNAL, for January, where graphite or plumbago is spoken of as carbonate of iron, instead of an allotropic form of carbon, as it really is.

New England Medical Register.—A new edition (1884), revised by Dr. Francis H. Brown, will shortly be published by Cupples, Upham & Co., Boston.

Lumbago may be quickly relieved by binding a piece of enameled cloth, such as is used to cover tables, over the loins outside of the flannel shirt. Profuse perspiration is produced, which rapidly relieves the pain.—*Sci. Amer.*

Treatment of Warts.—A plaster of black soap, applied each night for a fortnight, according to M. Vidal, will soften a wart so that it may be scraped off. The treatment by M. Cellier is to transfix the principal wart with the point of a pin, the head of which is then to be held in the flame of a candle until the wart is destroyed; it will drop off in a few days. The remaining warts will then usually disappear.—*La France Médicale.*

To Make Arnica Plaster.

TAKE French isinglass, 1 ounce; warm water, 1 pint; glycerin, 1 ounce; tincture of arnica, half an ounce. Soak isinglass in a little warm water, for twenty-four hours; then evaporate nearly all the water by gentle heat. Dissolve the residue in a little proof spirits of wine, and strain the whole through a piece of open linen. The strained mass should be a stiff jelly, when cool. Fasten a piece of silk or sarsenet on a wooden frame with tacks or thread. Melt the jelly, and apply it to the silk thinly and evenly with a badger hair brush. A second coating must be applied when the first has dried. When both are dry, apply over the whole surface two or three coatings of balsam of Peru. This plaster remains quite pliable, and never breaks.

Plastic Clay for Suppositories.

THE use of plastic clay as a convenient material for suppositories in some cases is recommended by Dr. Trippier. The ordinary sculptors' modelling clay is used, the medicaments being dissolved in water, and then worked into a mass; in this way, salts of iron and copper, alum, or even vegetable extracts may be incorporated by taking proper precautions. Dr. Trippier appears to contemplate supplying patients with the medicated clay, so that they can break off a portion and mould it between the fingers as required. Although the mass may easily be maintained of a proper consistence in a vessel placed in a plate containing water and covered by a bell-glass, it is liable to harden if exposed in the open air; but this may be prevented by the use of glycerin, which is said to have the additional advantage of giving stability to a potassium iodide mixture. The formula given for such a mass is: Clay, 500 grammes; water, 50 grammes; potassium iodide, 30 grammes; glycerin, 100 grammes.

Source of the Active Properties of Jequirity.

FURTHER experiments undertaken by MM. Cornill and Berlioz with a view to determine the general action on the body of the microbes found in an infusion of jequirity, *Abrus precatorius*, have led them to the conclusion that these bacteria are the sole active principle in producing the medicinal effects of the seeds. The infusion deprived of the bacteria by filtration after M. Gautier's process produced no pathological effects, while the subcutaneous injection of a solution of the crystallized principle, prepared by M. Chapoteau from the seeds, produced no appreciable effects (*Comptes Rendus*, xcvii., p. 679).—*Pharm. Jour. and Trans.*

"Salt Mouths."

A CORRESPONDENT of *The Druggist* says: My notion of a proper "salt mouth" is to have an amethyst or amber-colored bottle made in the shape of a can without shoulder. To have the lid too large for the glass can, to have an outside ring on the can, so that a ring of rubber, gutta percha, cork, or the like will protect the contents from the air. You can without trouble wash such bottle inside and out. Contents easily emptied. They can be made as pretty and showy as the ordinary salt mouth, and have the advantage of being approachable with the horn spoon and scoop. Also a slide should be made for a mica libel. In the top or lid is a good place for retail marks and cost price. The ordinary salt mouth, no matter what sort of glass, is difficult to cleanse. This, I think, obviates that trouble, and does not detract from the beauty of shelf-ware.

Boric Acid not Harmless.

THERE is a case reported in *Schmidt's Jahrbücher* following the use of an injection of a four-per-cent solution for chronic diarrhœa, and the *Med. Reord* reports a death supervening upon its external use in an ulcer. The cases teach us that boracic acid is not so harmless as is usually supposed, and warn us to be cautious in its use, either pure or in such combinations as borax, boro-glycerin.

Bad Effects from Vaseline.

AT a meeting of the Cincinnati Academy of Medicine, it was stated that the vaseline used at present is not the same preparation that was formerly employed. In several instances it has caused eczema in sensitive skins. A German pharmacist examined six different specimens recently and found that nearly all of them were acid; besides the free acids they contain some sulphuric and sulphurous acids.

NOTE.—There seems to be some mistake about this. Probably some of the numerous petroleum ointments, recently put on the market, were found to have this disagreeable property.—ED. A. D.

A NEW SIPHON.

FR. BODE and AL. WIMPF are the German patentees (No. 23,794) of an apparatus for siphoning liquids which is here illustrated.

The short leg of the siphon is surrounded by a cylinder the bottom of which has a hole closed by a valve. When the short limb is immersed in liquid, the cylinder is filled to the level of the surrounding fluid. Then, by blowing into either of the tubes E or F, the the other being closed meanwhile, the valve is closed and the liquid in the cylinder is driven into the siphon until sufficient has reached the long leg to start the automatic flow.

Abrotine.

THE common southern-wood (*Artemisia Abrotanum*) is reported by M. Craveri (*L'Union Pharm.*, xxiv., 410), to yield a crystallizable alkaloid, which he has named "abrotine." The sulphate, hydrochlorate and citrate have been prepared, all of which crystallize well, and the hydrochlorate is very soluble in water. Some preliminary physiological experiments with abrotine have been made by Dr. P. Giacova, who finds it to lower the temperature of the body, and to stop the action of a frog's heart in a few minutes. The alkaloid and its salts appear also to possess the property of preventing the putrefaction of albuminoid matter.—*Pharm. Jour. and Trans.*

Eucalyptus in Baldness.—A California physician was in the habit of pounding to a pulp the leaves of eucalyptus, which he applied to his head for the cure of headache, and was surprised to find a new and abundant crop of hair commence to grow.

Eau de Cologne.

	I. parts	II. parts
Oil of Orange Peel	150	13
" " Lemon	150	17
" " Bergamot	60	7
" " Neroli (bigarade)	5	—
" " Neroli (petale)	10	7
" " Rosemary	20	7
[Deodorized] Spirit	40,000	4000

Either of these formulæ may be used. Dissolve the oils of orange, lemon, and bergamot in 30,000 (I.) or 3,000 (II.) parts of pure wine-alcohol, and the oils (I.) or oil (II.) of neroli in 1,000 of finest, genuine grain alcohol. Set both solutions aside for a few days, in a shady place. Then mix them in a retort and distil. To the distillate add the oil of rosemary and let the product season as long as possible in a shady and cool place

The oils must be the very finest and perfectly fresh. The two kinds of alcohol should be selected with care [in this country it will be impracticable to use any but grain-alcohol], for upon them depends the secret of making a really good eau de Cologne, because each of them has its peculiar ethereal odor. [If these two different spirits cannot be obtained, then deodorized alcohol must be used, as we have already indicated in the formula. In fact, the experience of perfumers in this country is altogether on the side of *deodorized* alcohol, and opposed to any fusel odor.] The distillation should never be omitted as the product is thereby greatly improved. But, if it is inconvenient to do so, the next best thing to do is, to heat the whole mixture in a vessel closed with cotton, placed in hot water, for a few minutes to 60° C. (140° F.).

Another important factor to improve its flavor is to keep it for a long time before using it. To avoid this loss of time, it has been proposed to cause the liquid to flow from a reservoir or bottle through a spirally coiled, very narrow glass-tube exposed to the direct rays of the sun into a vessel placed below and to repeat this process a number of times. This is said to be most effective if done during the forenoon, while the rays of the sun are active without being too heating.

The product prepared after formula I. approaches that known in trade as "Springbrunn," having a specific odor of orange peel. That made after II. resembles the kind known as "Jülichsplatz 4" which has a characteristic odor of orange flowers. No. I. is enlivening, refreshing, and sweet in odor; No. II. more "sleepy," or, as it is termed, more "high-toned."—AD. VOMÁCKA in *Seifenfabrikant.*

[Note by ED. A. D.—Those who have occasion to use oil of orange peel for cologne or other flavoring, will do well to procure the oil of the Curaçao orange, which is the finest oil of orange known. It may be had from dealers in essential oils. Just now it can be had from Fritzsche and Co., New York.]

On the Pharmacopœial Rule of Preparing Diluted Alcohol from Alcohol of Any Higher Strength.

UNDER the heading of Alcohol Dilutum, the U. S. Pharmacopœia has the following passage:

"Diluted Alcohol of this strength [containing 45 per cent by weight of absolute alcohol] may be prepared from alcohol of any higher percentage by the following rule in which all terms denote weight: Divide the alcoholic percentage of the alcohol to be diluted by 45.5 and subtract 1 from the quotient. This gives the number of parts of water to be added to *one part* of the alcohol."

In commenting upon this, Dr. Adolph Tscheppe says: Many who are not familiar with mathematical expressions,

subtract the 1 from the last place of the decimals, instead of from the whole number in front of the decimal point. It would have been more intelligible if the quotient had been made to express the number of parts to which one part of the given alcohol should be diluted. Still more simple is a rule which requires no calculation at all and which, when once understood, can never be again forgotten, namely:

The dilution is to be made in inverse proportion to the respective percentages (of the given and the desired alcohols).

For instance, if an alcohol has been found, by means of the areometer, to contain 62 per cent of absolute alcohol, then 45.5 parts of this must be diluted to 62 parts in order to obtain an alcohol of 45.5 parts of absolute alcohol.

If a pound, or any other definite quantity, of such an alcohol is to be diluted in the same ratio, then the well-known rule of three (or proportion) will solve the problem:

$$45.5 : 62 = 16 \text{ oz.} : x.$$
$$x = 22.08 \text{ oz.}$$

That is, a pound (or 16 oz.) of a 62 per cent alcohol must be diluted with enough water to weigh 22.08 oz. in order to furnish officinal diluted alcohol of 45 per cent.

And if a definite weight is be to obtained, the proportion is simply inverted. Supposing the problem to be: It is required to prepare 80 ounces (by weight) of a 45.5 per cent alcohol (that is, diluted alcohol) from a 62 per cent alcohol. How much of the latter must be taken?

$$62 : 45.5 = 80 \text{ oz.} : x$$
$$x = 58 \text{ oz.}$$

That is, 58 oz. must be diluted with water to make 80 oz.—*Pharm. Rundschau* (Hoffmann's), 1883, 269.

On Testing for Arsenic, Particularly in Subnitrate of Bismuth.*

THE test for arsenic by evolving hydrogen gas from an alkaline solution (in presence of zinc and iron), has been repeatedly recommended, and has also yielded the best results in Prof. Reichardt's hands, so that it was finally adopted by the Pharmacopœia Commission. Soon after the publication of the Germ. Pharm., however, it was condemned by manufacturers, by Hager and others. Schlickum even states that he added quite considerable quantities of solution of arsenite of potassium to the subnitrate without finding it again by means of the test.

Prof. Reichardt had already drawn attention, in an article published in 1880 (*Arch. d. Pharm.*, 214, p. 1, sqq.), to the fact that arsenetted hydrogen effected the complete and immediate reduction of nitrate of silver only if the solution of the latter contained a considerable excess of nitric acid.

At first the Pharmacopœia Commission had worded the arsenic test so that the gas was to be conducted into such an acidulated solution; but, when the whole reaction was ordered to be performed in one test-tube and the gas to be made to strike against paper wetted with silver solution, it was overlooked that this solution must be *acid*.

The neutral concentrated solution of nitrate of silver has been condemned as being too delicate, since it is decomposed even by contact with the air. It was also supposed that the nitric acid of the subnitrate of silver could be reduced to ammonia (NH_3) and thus vitiate the test.

It is well known that hydrogen is capable of reducing a neutral solution of silver (sulphate, nitrate, or acetate of silver) according to Gmelin-Kraut.

The first series of experiments detailed by Prof. Reichardt concerned the

Behavior of Hydrogen towards Paper wet with Silver Solution.

Three different solutions were experimented with, viz.: 1, a solution of 1 in 2; 2, one containing 1 in 20; 3, another of 1 in 2, to which an equal volume of officinal nitric acid had been added.

On bringing hydrogen evolved from an alkaline solution *free from arsenic* in contact with the first solution, the latter became colored at once or after one miuute. In the case of the second this occurred after some time. In that of the third *no change* was observed even after several hours.

It is to be observed, that zinc alone added to solution of soda evolves almost no hydrogen at all; but it does so at once when in contact with iron. It is customary to select zinc filings and ironwire; or iron filings and fragments of zinc; but it is necessary that the metals shall be in contact in several places.

If the test-tube in which the reaction is made is covered with paper wet with silver solution, there is a risk of the silver being reduced on the outer surfaces by certain gases contained in the air. To avoid this error, Prof. Reichardt repeated the experiments so that the silver paper was held within the test-tube by notches in corks, with which the test-tube was loosely stoppered.

Even in this case the same results as above were obtained, except that it required a somewhat longer time to color the paper. The acidulated solution, however, remained uncolored even after twenty-four hours.

In another experiment, hydrogen gas was first passed through a strongly acidulated silver solution, which therefore, must retain sulphuretted, arsenetted, and antimonetted hydrogen. The washed gas was then made to pass through a tube containing successively paper-strips wet with the above three solutions. In this case the same result was again obtained.

From these experiments it results that neutral silver solutions are altogether unsuitable for this test.

The next question investigated by Prof. Reichardt was this, whether any of the nitric acid present during the reaction was reduced to ammonia. While a faint evolution of ammonia was obtained on pushing the reaction (particularly on the application of heat), this was nevertheless found to be so small as not to interfere with the silver solution, provided it was properly acidulated.

Next he studied the

Behavior of hydrogen evolved from an alkaline solution towards arsenious and arsenic acid.

[*Note.*—In order that the following may be properly understood, we quote here the arsenic test prescribed under *Bismuthum subnitricum* by the German Pharm., II.

"When heated with solution of soda in excess, it evolves no vapor of ammonia; if the filtrate [from the previous reaction] be warmed in a test-tube containing a few pieces of bright iron-wire and a little zinc filings, the escaping gas should not impart any color to paper wet with solution of silver (1 in 2) within one hour."

The United States Pharmacopœia directs to use aluminium wire, in place of iron and zinc. Aluminium has at least this advantage that it is probably never contaminated with arsenic, while this is frequently the case with zinc.—ED. A. D.]

One experiment was made in the following manner: To a flask in which the above described test was being performed, *one* drop of Fowler's solution (corresponding to about 0.0004 gm. of arsenious acid) was added. The paper which had been wetted with *acid* solution of silver, began to be discolored in a few moments, became distinctly so after two minutes, quite black after fifteen minutes, and an appreciable amount of arsenic separated in the alkaline liquid, in brownish-black flocculi, which rendered the whole liquid turbid.

Another experiment showed that a quantity as small as 0.0000032 gm. or one-twenty thousandth of a grain of arsenious acid still gave a visible reaction.

But Prof. Reichardt ascertained the important fact that *arsenic acid* (As_2O_5) *is not reduced to arsenious acid* (As_2O_3) in an alkaline solution.

In presence of arsenic acid, during the reaction, there is, therefore, no response whatever to the silver test; but the least trace of arsenious acid is immediately indicated.

Since iron, or zinc, or hydrogen in statu nascenti under ordinary circumstances, very rapidly reduce arsenic to arsenious acid, it was attempted to bring about this reduction more promptly in the alkaline liquid, by continued heating, boiling, and shaking, but only with limited success and not of sufficient decisiveness to serve as proof of the presence of arsenic.

All the preceding experiments were made in duplicate, both with neutral and with acid solution of silver. The presence of nitric acid never interfered.

(To be concluded.)

A Test for Tin.

THE reaction between stannous chloride and a solution of brucia in nitric acid is well known to chemists; but, as far as the writer is aware, it has hitherto been used only for the detection of brucia, and not as a test of tin. For the latter purpose, it possesses several advantages over the ordinary test with mercuric chloride. It is more delicate, more striking, more convenient, and may be applied under conditions where the latter test cannot.

Brucine Reagent.—To 1 decigramme of crystallized brucia add 1 *cc.* of pure nitric acid; when solution is complete, add 50 *cc.* of water, heat to boiling, and cool.

The heating is not necessary, but renders the reagent somewhat more sensitive. It is of a permanent orange amber color.

Use.—In the ordinary course of analysis, the sulphides of arsenic, antimony, and tin are obtained upon a filter, and are digested with ammonium carbonate for the removal of arsenic. The residue is dissolved in strong hydrochloric acid, the solution evaporated, diluted with water, and a strip of platinum and a strip of zinc placed in it, in contact, for several hours. Nascent hydrogen reduces antimony chloride to metal, which is deposited upon the platinum; and stannic chloride to stannous chloride, which remains in solution. Now, if to a few drops of the brucine reagent, in a white dish, a drop of the solution containing stannous chloride be added, a distinct purple color is produced.

Interference.—Neither zinc chloride nor nascent hydrogen produces any effect upon the reagent. Organic matter does not interfere. Ammonium sulphide and sodium hyposulphite act like stannous chloride.

Delicacy and Limits.—By using a solution of stannous chloride repeatedly diluted, it was found that a drop containing only 0.0000025 gramme, gave a distinct color after about one minute. A drop cantaining 0.000002 gramme gave a barely perceptible cloudiness with mercuric chloride. If the reagent be too dilute, the color is pale and the reaction indistinct. If excess of brucia be used, no purple color is produced, but a dirty green, or a decoloration resembling the morphia reaction.—CHARLES R. DREYER, in *Chem. News*, Nov. 30th, 1883.

* Abstract from a paper by Prof. E. Reichardt on Subnitrate of Bismuth and its Examination, published in the *Arch. d. Pharm.*, August, 1883.

The New Time System.

THE movement for a uniform standard of time embodied in the plan of the railway companies, which lately went into effect, has been given national countenance and importance by the action of the authorities at Washington, and it is only a question of a short time when it will spread to the whole country, if not to the whole continent. It has been discussed in many of the sessions of the several international scientific congresses which have met in Europe within the past two or three years, and at no distant day will prevail throughout the civilized world. In Washington the economic merits of the system have been so readily seen that, by direction of the Secretary of the Interior, the new standard will be substituted for the local time of the national capital, and, as the Secretary of the Interior is the official who controls the Land Office and the great Western reservations, his action means the adoption of standard time in the regulation of the clocks and business of that department all over the United States. The facilities of the Washington Observatory will be employed in determining the exact time for the longitudes of the eastern and central divisions of the United States, while that for the Rocky Mountain district and the Pacific slopes will probably be furnished from the local station at Pike's Peak.

The hearty encouragement given the new standard generally in the short time which has elapsed since the railroad convention at Chicago promulgated the scheme leaves little doubt that the uniform standard will come into vogue through the force of its own advantages. The confusion of time standards in a nation with so broad a domain eastwardly and westwardly as ours, and with so intimate commercial and industrial interests as exist longitudinally in the United States, had been the source of unceasing annoyance and trouble. The remedy occurred to the scientific mind of Professor Cleveland Abbe, of the Signal Bureau at Washington, and his plans were elaborated by Dr. F. A. P. Barhard, of Columbia College, who, as a delegate to the International Congress at Liverpool last year, laid the foundation for the eventual extension of the system to Europe and the East.

An inspection of the atlas of the Western Hemisphere shows that all the land composing the continent of North America is contained substantially between the 50th and 130th degrees of west longitude. Professor Abbe started with the meridian of 60 degrees west from Greenwich—or the four-hour meridian—and proposed that it should give the time to Newfoundland, Nova Scotia, New Brunswick and all the maritime provinces of Canada. His next meridian, the one 75 degrees west of and five hours later than Greenwich, was to dominate New England and the Middle States and Quebec and Ontario in Canada. The third was the meridian of 90 degrees, the six-hour meridian, being the longitude of New Orleans, and was to fix the time for the Missippi Valley. The fourth that of Denver and Pike's Peak—namely, 105 degrees, seven hours later than Greenwich—was to govern the time of the Rocky Mountain Section, and the fifth that of Santa Barbara, California —120 degrees—the eight-hour meridian was to be the standard of the Pacific slope. To these he gave respectively the designations—Eastern time, Atlantic time, Valley time, Mountain Time, and Pacific time.

A clear conception of the working of the new plan may be obtained by taking an ordinary globe representing the earth and dividing the same into twenty-four sections by dark lines, being drawn from pole to pole. These sections will represent the twenty-four sections into which the surface of the earth is supposed to be divided to secure the basis of the system of standard time—the standard in each section being an even hour prevailing as the time all over the area of the section. In this circuit of the globe the twenty-four sections will thus occupy successively each and all of the twenty-four hours of the day. If next, midway between the lines of the sections of the globe, twenty-four lines are drawn from pole to pole, one of these lines coincides with the longitude of Greenwich. Then the twenty-four heavy lines, which in the revolution of the earth are just an hour apart in coming vertically beneath the sun, will represent the twenty-four arbitrary meridians, each of which, starting at Greenwich, is to give the time to the country half way each side of it, or, in the case of the globe, to the space between the light lines.

Nothing could be simpler than the plan as adopted. It divides our continent into four breadths or belts of fifteen degrees each (the equivalent of an exact hour in time). Each belt has its separate and uniform standard of time, to which every place within its limits should conform. At each boundary there is an arbitrary change of one hour, and the time of the traveler's watch being set accordingly, holds good till he reaches the boundary of the next belt. If he does not wish to disturb the hands of his watch he mentally adds or subtracts one hour for each belt, as he journeys east or west.

The valuable features of the new plan may be summed up as follows; No standard clock will be more than half an hour slower or faster than the local time anywhere, even at the halfway lines between the time meridians —the heavy lines of the globe—and while the hour hands would differ by intervals of unity from section to section, the minute and second hands would point identically to the same figures on every clock over the whole face of the earth. For instance, when

LONGITUDE WEST FROM GREENWICH.

10 A.M.	11 A.M.	12 Noon.	1 P.M.	2 P.M.
PACIFIC DIVISION.	MOUNTAIN DIVISION.	CENTRAL DIVISION.	EASTERN DIVISION.	INTERCOLONIAL DIVISION.
120°	105°	90°	75°	60°

Pacific Ocean.										Atlantic Ocean.
Victoria, V.I.	Walla Walla, W. T.	Fort Benton, Mont.	Bismark, Dak.	Pembina, Dak.	S. St. Marie, Mich.	Ottawa City, Can.	Quebec, Can.	Frederick'on, N. B.		
Olympia, W. T.	Boisee City, Idaho.	Helena, Mont.	Ft. Kearney, Neb.	Yancton, Dak.	Saginaw, Mich.	Toronto, Can.	Montreal, Can.	St. John, N. B.		
Astoria, Or.	Lewiston, Idaho.	Cheyenne City, Wy.	Ft. Laramie, Wy.	St. Paul, Minn.	Lansing, Mich.	Oswego, N.Y.	St. Albans, Vt.	Halifax, N.S.		
Salem, Or.	VirginiaCity, Nev.	Salt Lake City, Utah.	Denver, Col.	Winona, Minn.	Detroit, Mich.	Rochester, N. Y.	Eastport, Me.	Yarmouth, N. S.		
San Francisco, Cal.	Cedar City, Utah.	Ogden City, Utah.	Colorado City, Col.	La Crosse, Wis.	Gr. Rapids, Mich.	Syracuse, N. Y.	Montpelier, Vt.			
Sacramento, Cal.	San Diego, Cal.	Provost City, Utah.	Ft. Atkinson, Kan.	Pairie du Chien, Wis.	Ann Arbor, Mich.	Buffalo, N.Y.	Bangor, Me.			
Marysville, Cal.	San Pedro, Cal.	Prescot City, Ariz.	Austin, Tex.	Omaha, Neb.	Madison, Wis	Harrisburg, Pa.	Augusta, Me.			
Montery, Cal.	San Bernardina, Cal.	Santa Fé, N. M.	Corpus Cristi, Tex.	Nebraska City, Neb.	Chicago, Ill.	Pittsburgh, Pa.	Belfast, Me.			
Carson City, Nev.	Fort Yuma, Ariz	Albuquerq'e, N. M.	Brownsville, Tex.	Des Moines, Iowa.	Springfield, Ill.	Cleveland, O.	Portland, Me.			
Stockton, Cal.		Chihuahua, Mex.	Matamoras, Mex.	Dubuque, Ia.	Ft. Wayne, Ind.	Zanesville, O.	Concord, N. H.			
S. Barbara, Cal.			Monterey, Mex.	Davenport, Iowa.	Indianapolis, Ind.	Wilmington, Del.	Albany, N.Y.			
				Iowa City, Ia.	Terre Haute, Ind.	Dover, Del.	Boston, Mass.			
				Burlington, Ia.	New Albany, Ind.	Baltimore, Md.	Hartford, Conn.			
				Rock Island, Ill.	Toledo, Ohio.	Annapolis, Md.	New Haven, Conn.			
				Quincy, Ill.	Columbus, O.	Washington, D. C.	Providence, R. I.			
				Topeka, Kan.	Cincinnati, O.	Wheeling, W. Va.	New York, N. Y.			
				Leavenw'th, Kan.	Frankfort, Ky.	Richmond, Va.	Newark, N.J.			
				Jefferson City, Mo.	Louisville, Ky.	Raleigh, N.C.	Trenton, N.J.			
				St. Louis, Mo.	Lexington, Ky.	Newburn, N. C.	Philadelphia, Pa.			
				Hannibal, Mo	Nashville, Tenn.	Wilmington, N. C.	Cape May, N. J.			
				Ft. Gibson, Ind. T.	Memphis, Tenn.	Columbia, S. C.				
				Little Rock, Ark.	Knoxville, Tenn.	Charleston, S. C.				
				Helena, Ark.	Milledgeville, Ga.	Beaufort, S. C.				
				Jackson, Miss.	Atlanta, Ga.	Augusta, Ga.				
				Vicksburg, Miss.	Macon, Ga.	Savannah, Ga.				
				Natchez, Miss.	Americus, Ga.	Fernandina, Fla.				
				Baton Rouge, La.	Tallahassee, Fla.	Jacksonville, Fla.				
				New Orleans, La.	Montgomery, Ala.	Key West, Fla.				
				Shreveport, La.	Mobile, Ala.					
				Dallas, Tex.	Marion, Miss.					
				Huntsville, Tex.						
				Houston, Tex.						

it was fifteen minutes and fifteen seconds past twelve o'clock at Greenwich it would be exactly fifteen and a quarter minutes past some hour of the clock on every other timepiece all over the globe. This scheme has received the emphatic approval of a number of scientific associations, among them the American Meteorological Society, the American Geographical Society, the Canadian Institute, the International Geographical Congress at Venice and the Imperial Academy of Sciences at St. Petersburg.

The objections raised in Boston have been overcome by arguments showing that the usual clock-time in any place is not, in fact, an exact record of the sun's daily journey.

Among the places where the clocks will be exactly right by the new standard are Ottawa, Canada; Pottsdam, Cooperstown, and Herkimer, in New York, and Vineland in New Jersey. Not taking seconds into account, the following table shows the differences of time in the Eastern District between the local times, which are the present standards for the running of trains on one or more roads, as compared with 75th meridian (the new) time:

Minutes faster.	Minutes slower.
Albany, N. Y.....5	Baltimore, Md....6
Bath, Me.....20	Charleston, S. C.15
Boston, Mass....16	Detroit, Mich 32
Montreal.....6	Hamilton, Ont ..19
New London, Ct..12	Philadelphia.....1
New York City....4	Port Hope, Can..14
Portland, Me. ...19	Port Huron, Mich30
Providence, R. I..14	Richmond, Va...10
	Savannah, Ga....24
	Toronto, Can....17
	Washington, D.C.8

Above we give a plan, showing the new time sections east and west of the ninetieth degree from Greenwich, which includes all the territory of the United States. The heavy lines show the centres of the sections and the light lines the limit east and west (7½ degrees) which is included in each section. Within each section we have printed the names of some of the principal cities to give a clear idea of the territory, and more especially the cities, which are included in each section.—*Oil, Paint, and Drug Reporter.*

Window Dressing.

DRUGGISTS dress their shop windows, in order that the public may be attracted by the display and induced to patronize the establishment. Window dressing consists of a more or less artistically arranged show of goods, and while it frequently evinces great taste, it is not unfrequently carried out in such a manner as to be extremely suggestive to the passer-by. Probably no two druggists' ideas will exactly coincide as to how a window ought to be dressed; but there are one or two principles which should be kept sight of in this particular branch of business. A window should be so dressed that it will not disgust and repel the public. The last is easily accomplished, and we often see it done by exposing, for example, open tins of glycerin jujubes or delectables in the windows, the lozenges covered with dust and dead flies. Not only are the public disgusted with this, but they have ground for very serious complaint. No man has a right to "dress" his window in such a manner that any passer-by will, for months after, be seized with nausea every time he thinks of curing his sore throat by means of a glycerin pastille.

Window dressing should not be made the means of spoiling valuable drugs, which is often done, for example, by placing half a dozen clear-glass wine-testers, purporting to contain the finest cod-liver oil, in the direct and unmitigated rays of the summer sun. As a general rule, liquids intended for internal use should never be placed in the window unless well-wrapped up in paper, and even then the heat will be apt to do them harm.

Window dressing ought not to be selected as the medium for displaying the ignorance of the druggist. If this is desired, however, it may be accomplished by crowding perishable drugs into the place where they are most likely to be damaged. For example, we remember one instance where a bell of camphor was a favorable article, and while it was, no doubt, very interesting to the outsider, it did not say much for the wisdom of the owner of the shop.

A window should be dressed neatly. In the eyes of the public, a druggist does not know his business if he cannot do up a parcel neatly; and if the window be clumsy or untidy, it is quite a natural inference that the dresser is clumsy and untidy also. Consequently, that particular shop gets the cold shoulder. In order to dress neatly, too many articles should be avoided, while there should be enough to make a somewhat symmetrical arrangement. Some druggists have absolutely nothing in their windows, save the orthodox specie-jar and carboys, while others huddle together every conceivable article, regardless, alike, of congruity of association and tasteful arrangement. There is, however, a happy medium which might be employed with more advantage.

Some druggists object to window dressing, the spoiled goods, in their opinion, more than counterbalancing the value of the advertisement. As to that, there are many articles that can be shown without risk, and it is, moreover, perfectly legitimate to do up a set of "dummies" for the window. Others, again, think that window dressing is not worth the trouble involved, as the public do not concern themselves with the boxes, bottles, trusses, and sponges; but still they continue the practice, simply because others do. To all of these we would suggest a plan that we have seen carried out with success. Procure from a cabinet-maker a number of cases—as many as will conviently occupy the available window space—about three inches deep, with glazed lids, and let these be divided into a series of compartments, say three by four inches. Fill the compartments with choice specimens of drugs, one case containing roots, another barks, another leaves, another seeds and fruits, another inorganic chemicals, and so on. These may be placed in the window without labels, in which case they will be an unfailing source of speculation to the passer-by; or they may be labelled, when they will be as eagerly, and much more intelligently scrutinized.

* * *

The advantage in this style of window dressing is that it supplies interesting material for the public eye; it involves no trouble after the cases are once filled; there can be no risk of spoiling valuable goods, and the cases always look clean and neat.—*Chem. and Drug. Diary.*

Soap Varnish.

THIS varnish, owing to its cheapness, complete resistance to water, and considerable elasticity, is of value for many purposes. To make it, boil good tallow soap with soft water until dissolved, and filter while hot through cloths; heat again, add an equal volume of water and a boiling solution of alum, as long as any alumina salt is precipitated. Let the stearate of aluminium settle, and wash the precipitate thoroughly, then dry and heat on a water-bath until transparent. Finally, stir the preparation into turpentine, heated nearly to boiling until a solution is made of the consistence of thick varnish, which can afterwards be thinned with more turpentine if required. Johnson's water-proof varnish for paper and cloth is made by dissolving sulphate of iron in water, adding soap solution thereto and straining off the precipitated stearate of iron. If this be dissolved in bisulphide of carbon or benzole, a water-proof varnish is obtained. For a white varnish use alum instead of sulphate of iron. Varnish for gilding is made as follows: Fifty parts of soda are dissolved in 100 parts of water in a copper vessel heated to boiling, and 100 parts of powdered resin stirred in and boiled for two or three hours until perfectly clear. Let it cool, pour off the supernatant water from the heavy, viscous, resin soap, add 100 parts of fresh water and 15 parts of steeped glue, and heat until the whole is dissolved. This makes a quick drying varnish; for a slow-drying varnish add 10 to 20 parts of glycerin. The above resin soap, mixed with about five per cent of ammonia, forms a very cheap and durable vehicle for paints. Water-glass paints are only successful when mixed in small quantities with the varnish and applied immediately.—E. ANDRES, *Pharm. Journ.*, September 1st.

Mouth-Washes.

THE following formulæ are published by Ad. Vomácka in the "*Seifenfabrikant:*"

Guaiacum Wood.....	30 parts.
Valerian Root.....	30 "
Staranise.....	40 "
Cloves.....	20 "
Cochineal.....	10 "
Borax.....	3 "
Cognac.....1500	"
Oil of Cloves.....	2.5 "
Oil of Sassafras.....	2.5 "
Oil of Neroli	1 "
Oil of Peppermint.....	4.5 "
Vanilla.....	10 "
Rose-Water.....300	"
Glycerin.....100	"

Digest the guaiacum wood, valerian, cloves, and staranise in 1,000 parts, and the ethereal oils and finely-cut vanilla in 500 parts of the Cognac during fourteen days. Then express and mix. Having digested the cochineal in the rose-water and glycerin in which the borax had previously been dissolved, add this mixture to the former. Let the whole stand for some time in a cool place, then filter through a double filter.

This is a most superior mouth-wash, though rather more expensive than the following ones:

Eau dentifrice (Dr. Pierre, Paris).

Tincture of Cedar Wood.....300	parts.
Oil of Peppermint ...	1 part
Oil of Anise.....	1 "

Tincture of cedar wood is prepared by digesting one part of the chips of cedar wood (obtainable in lead pencil and other factories) with five parts of cognac.

Salicylic Acid Mouth-Wash (Kolbe)

Salicylic Acid.....180	grains.
Distilled Water....	2 fl. oz.
Cognac.....	10 "
Oil of Wintergreen.	10 drops.
Spirit of Neroli.....	20 "

Eau de Botot.

Tincture of Cedar Wood.....400	parts.
Tincture of Rhatany.100	"
Oil of Peppermint...	3 "
Oil of Lavender.....	1.5 "
Oil of Staranise.....	2 "

Tincture of rhatany is prepared like the officinal tincture of krameria, only that cognac is substituted for diluted alcohol.

In all of the above preparations diluted alcohol may be used in place of cognac, but the products are not so fine as when the latter is used.

BIBLIOGRAPHY.

PHARMAKOGNOSIE DES PFLANZENREICHES. Von F. A. FLUECKIGER, Zweite Auflage. Dritte Lieferung. 8vo. Berlin: R. Gaertner'sche Verlagsbuchhandlung (Hermann Heyfelder). Pp. 601–1049.

IT will be welcome news to many of our readers to learn that the new edition of Flückiger's Pharmakognosie, of which the first part appeared in 1881 (see NEW REM., 1881, 185), the second in 1882 (see N. R., 1882, 317), is at last completed. The author has worked most indefatigably to push the work to rapid completion and has succeeded in accomplishing this even earlier than we expected. Our previous two notices gave an outline of the systematic arrangement followed in the work. The present number contains the following chapters and divisions (continued from N. R., 1882, 317):

B. Leaves (and, in part), Flowering Plants

1, of faint odor and taste; 2, of prominently astringent taste; 3, leaves and herbs of bitter taste; 4, leaves and herbs of saline bitter, scratching and sharp taste; 5, leaves and herbs of aromatic taste; *a*, from Labiatæ: *b*, from other families, containing ethereal oil.

C. Flowers, Inflorescences, Flower Parts.

1. Parts of Flowers; 2. Complete Flowers and Inflorescences.

IV. Fruits.

A. Fruit-rinds and Pulps.

B. Fruits and Fruit-groups. 1, of oily or sweet taste; 2, of bitter taste; 3, of sharp taste; 4, chiefly aromatic fruits and fruit-groups.

V. Seeds.

A. without bitter taste; oily or mucilaginous.

B. of bitter taste.

C. of sharp or aromatic taste.

D. Seed-appendages.

We have already mentioned that the work may be regarded as a new and revised German edition of the Pharmacographia, inasmuch as the larger part of the contents of the latter has been incorporated—though not verbally—into the "Pharmakognosie." A considerable number of drugs treated of in the Pharmacographia have been omitted, because they are little or not at all known and used in Germany. On the other hand, the present work contains chapters on the following drugs not treated (or perhaps but incidentally mentioned) in the Pharmacographia.

Amylum; Stipites Laminariæ; Fungus Laricis; Fungus igniarius; Rhiz. Zedoariæ; Rad. Ononidis, Turpethi, Angelicæ, Levistici, Pimpinellæ; Cort. Frangulæ, Condurango; Herba Jaceæ; Fol. Malvæ, Althææ, Farfaræ, Trifolii, Theæ, Maté, Juglandis, Menthæ crispæ, Melissæ, Salviæ, Lauri, Aurantii; Herba Centaurii, Cardui ben., Absinthii, Millefolii, Serpylli, Marrubii, Cochleariæ, Meliloti; Flores Tiliæ, Malvæ arb. et silv., Chrysanthemi, Millefolii; Fruct. Rubi idæi, Sambuci, Papaveris, Lauri, Petroselini, Phellandrii, Siliqua dulcis; Guarana; Semen Papaveris, Cacao; Kola.

The authoritative value generally conceded to the first edition already, and applying in a still higher degree to the present, will relieve us from the task of attempting a critical review of the work. We can only say that we have read large portions of it with attention and care, and have found the information complete and brought down to the latest period. The most minute care has evidently been bestowed upon the history of the drugs and upon the pharmacognostic descriptions; and here we may record our wish that a subsequent edition of the work may be embellished with suitable illustrations, made for the purpose, to show the peculiar characters or appearances upon which the pharmacognostic distinctions are based, both of the drug as it usually appears, as well as in microscopic sections, drawn to a definite scale, wherever possible. This will be a considerable labor; but as not every one is in possession of works of reference containing such diagrams, it would, in our opinion, be a most meritorious undertaking to join this feature with a subsequent edition.

A very useful portion of the work is the appendix in which the older writers, from whose works much of the history of drugs is to be gleaned, are enumerated with biographical and bibliographical notices.

WIESEN AS A HEALTH RESORT IN EARLY PHTHISIS. With Directions for Clothing, Diet, and Exercise in the Swiss Alps during Winter. By A. T. TUCKER WISE, M.D., etc. London: Bailliere, Tindall & Cox, 1833, pp. 68. Sm. 8vo.

THIS contains chapters relating to the Sensation of Cold, Physiological Action of Atmospheric Conditions, Vascularity of the Lungs in Cold Climates, Evaporation of Secretions, Site and Elevation of Wiesen, Its Neighborhood, Climate, Water-Supply and Soil, Winter Clothing, Diet in the Swiss Alps during Winter, Exercise, Sleep, Meals, etc., The Drawbacks of High-Altitude Stations, Weather Journal, and Brief Notes of Comparison with St. Moritz, Dovoz, and Andermat Meteorological Observations.

The book has, as frontispiece, an outline map of Southern Europe, showing the location of Wiesen, and its relations by rail and otherwise to other places, and also, as an appendix, a number of tables showing the meteorological variations during 1882 and '83.

As may be inferred from the synopsis of its contents given above, the book will serve as a guide and handbook for those who desire information about this part of Switzerland, and may also, by its information, help to decide the propriety of resorting to it in any particular case.

REPORT OF THE COMMISIONER OF EDUCATION FOR THE YEAR 1881. Washington, 1883. Pp. 840; 8vo.

IT is to be regretted that the publication of these government reports involves so much labor that they fail somewhat to excite the interest which would otherwise be felt in them. It has always seemed to us that a division of the matter into parts, each embracing special branches, would enable some to be issued with less delay and, at the same time, this would enable the commissioner to include a summary of the progress in each special branch in such form as would attract the attention of those who are especially interested. A review of the progress in pharmaceutical or medical education, for example, loses much of its value when it appears two years later than the period embraced. Even with the present mode of publication we fail to find any reference to several matters which have a great deal to do with education in these special branches, and which we might well expect to find some mention of in a government report of such pretensions. For example, no reference is made to the Association of American Medical Colleges and its efforts to elevate the standard of medical education and secure uniformity in requirements. No attention is paid to the various State laws regulating medical education. There is no, or at most but a partial attempt to enumerate the various medical and pharmaceutical associations whose purpose is to advance the knowledge of medicine.

The existence of the American Pharmaceutical Association—one of the most powerful educational agents in the profession, is not even hinted at.

INDEX TO THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Vols. I.–XXXIII. Prepared by WILLIAM B. ATKINSON, M.D., Permanent Secretary. Philadelphia: 1883. Pp. 130, 8vo.

THE association has lately adopted the custom of publishing its transactions in the form of a weekly journal, and has ceased, therefore, to issue an annual volume. The Secretary, quite properly, considers this a fitting opportunity for issuing a complete index to the contents of the volumes already published and has, so far as we can judge, done the work with good judgment and care. We are not informed of the price of the book, but it cannot be so great as to prevent every physician who has occasion to become familiar with the writings of his brethren in this country from possessing it. Its existence will certainly lead to the preservation of complete sets of the annual volumes and to more frequent reference to them.

THE CHEMISTS' AND DUGGISTS' DIARY. 1884. Sixteenth Year of Issue. London: Published for the Proprietors at the Office of *The Chemist and Druggist*, 42 Cannon st., E. C.

THIS diary is always welcome, owing to the practical nature of the information contained in its prefatory pages and the convenience of its pages for memoranda. This year, its leading feature consists in the great variety of formulas and practical notes for the use of druggists, many of which have already appeared, however, in this journal.

THE MEDICAL RECORD VISITING LIST OR PHYSICIAN'S DAIRY, for 1884. New York: William Wood & Co.

OF all the pocket-books of this character there are none that approach in elegance or completeness to this. It is handsomely bound in soft seal-skin covers, gilded on its edges, and provided with a pocket and pencil, and is arranged for any probable number of patients. In contains several pages of information such as may be needed in emergencies, and altogether is just the thing for a physician's pocket or office table.

JAHRESBERICHT DER GESELLSCHAFT für Natur und Heilkunde in Dresden. Sitzungsperiode, 1882–83. 8vo. Dresden, 1883.

FIRST ANNUAL ANNOUNCEMENT of the Department of Pharmacy of the University of Wisconsin. Session of 1883–84. 8vo. Madison, 1882.

PREIS LISTE VOM MONAT SEPTEMBER, 1883, über Drogerie Waaren, chemische und pharmaceutische Präparate eigener Fabrikation, und Farben, von Gehe & Co., Dresden.

THE following reports of the proceedings of State Pharmaceutical Associations have come to hand:

INDIANA (May 22d, 23d, and 24th, 1883), pp. 164, 8vo. This contains, as well, the constitution and by-laws, and the roll of members.

NEW JERSEY (May 16th and 17th, 1883), pp. 88, 8vo. A beautiful phototype portrait of the late James Stratton, of Bordentown, is a frontispiece.

OHIO (May 16th and 17th, 1883), pp. 109, 8vo. A very creditable report.

LOUISIANA (April 2d, 3d, and 4th, 1883), pp. 73, 8vo. This is the report of the first meeting, and shows that the pharmacists of this State will soon have an association of the first rank in character.

All of the above reports contain valuable contributions to pharmaceutical science, most of which have already appeared in the pages of NEW REMEDIES.

CIRCULAR OF THE UNIVERSITY OF MICHIGAN. For 1882–83. Ann Arbor, 1883.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

Elder Berries.—Dr. Laurence Johnson, of New York City, writes, in answer to query 1,216:

In Oswego, Northern Cayuga, and Wayne Counties, New York, the elder berry grows in large quantities along the fences of neglected farms. Like some rare virtues, the elder berry flourishes best in the midst of poverty and neglect. In Oswego and Northern Cayuga a great deal of the land is poor, farming far from lucrative, and consequently the proper conditions for elder-berry growth are present to a rather remarkable extent. In certain parts of Wayne also the same rule obtains, and the plant is abundant. Years ago they were gathered in large quantities for the manufacture of a vile compound denominated "elder-berry wine"; and they were also dried and sold or bartered at the village stores. Why the demand for them has entirely ceased I do not know, for when properly treated they furnish an excellent article of food. Skilful housewives used to make them up into excellent tarts and pies.

No doubt they would again become an article of barter in the region named if proper inducements were offered through the local store keepers for their collection and preservation.

Dr. Orser, of Sanbury, Northumberland Co., Pa., also writes that:

"Elder berries can be found along the north shore of Lake Ontario, in Canada, in abundance. Many times have I gathered them in different localities. Should any person desire more definite knowledge of localities, I will be pleased to answer any correspondence relative to the same."

Geo. F. Hager, 90 South Market St., Nashville, Tenn., says, in response to the same query:

"The bush grows throughout the middle section of this State and northern Kentucky, in large quantities, along the fence-corners. A wagon-load can often be gathered on a single farm. As yet they have never been put to any use in this country, save to make ink."

Practical Formulas.

We are indebted for the following to Mr. J. F. Leary, of Rock Hill, Md.:

For Sore Nipples.

Castor oil ..... 2 ounces.
Laudanum ..... 5 drops.
Mix.

Apply to the nipples twice daily or after each nursing. "This remedy I have tried myself for my wife, when all other remedies had failed, and the nipples were deeply gashed."

For Unbroken Chilblains.

Tincture of Iodine .... 2 parts.
Camphor ..... 1 part.
Mix.

Apply with a feather night and morning.

"I have had people come from all parts of my district for this chilblain remedy, and I have never known it to fail. When suffering myself last winter from frosted feet, this was the only thing that gave me relief."

White's Cough Syrup.

Syr. Tolutani	℥ ij.
Glycerini	ʒ iv.
Syr. Scillæ Comp	℥ vi.
Syr. Ipecacuanhæ	ʒ vi.
Tr. Lobelia	℥ vi.
Tr. Opii Camph	ʒ vi.
Ext. Pilocarpi Fl	℥ ij.
Ammonii Chloridi	ʒ i.

M. Sig. Dose, ʒ i. every hour or two before bedtime, and three times a day through the day-time.

I inclose formula of cough syrup, which is one of the very best in use. I formulated it myself from the best authorities, and after two years' experience I find it to give the very best results obtainable from any cough syrup I have in the store, especially for recent coughs and colds. If you deem it worthy, you are at liberty to publish it for the use of druggists.

D. S. White,
Druggist.

Flandreau, D. T., December 17th, 1883.

No. 1,217.—**Wood-Wool** (D. S. M.).

This new material for dressings was first introduced into surgical practice by Dr. Walcher, assistant to the late Prof. Bruns, of Tübingen. It can be furnished in this country by manufacturers of paper-pulp (wood-pulp). Most probably, the well-known United States Senator from New York, Mr. Warner Miller, will be able to supply the demand.

No. 1,218.—**Bromide of Arsenic Solution (Clemens' Solution)** (W. W.).

As a supplement to the formulæ for the preparation of this solution which we gave on page 372 of our last volume, we place here another (from the *Moniteur de Pharmacie*), in which metallic arsenic and bromine are first made to combine:

Arsenic, in powder.. 72 parts.
Bromine ..... 240 "

Pour the bromine into a long test-tube cooled off with ice-water; add the powdered arsenic in small portions at a time, gently agitating after each addition, and cooling the mixture carefully before adding a new portion. When the whole of the arsenic has been added, the test-tube is closed with a cork, removed from the ice-water, and occasionally agitated during six hours. The liquid is then decanted into a glass-stoppered bottle. The tribromide of arsenic thus produced is a dense liquid of an orange color, slightly volatile at the ordinary temperature, and completely volatilizable by heat with the evolution of pungent yellow vapors.

To prepare the solution of bromide of arsenic, the following proportions are usually employed:

Bromide of Arsenic.. 13 parts.
Distilled Water ....620 "
Mix and dissolve.

It should be understood, however, that bromide of arsenic is insoluble, *as such*, in water. It decomposes in contact with the latter, and forms hydrobromic and arsenious acids:

$2AsBr_3 + 3H_2O =$
arsenic tribromide — water

$= 6HBr + As_2O_3$
hydrobromic acid — arsenious acid,

which dissolve in the water.

As the original bromide generally contains a little free bromine, the latter remains in solution after the compound has been decomposed by water.

The solution prepared by the above formula, assuming that *all* the bromine has been utilized in producing the tribromide of arsenic and that no excess of arsenic be present, would contain about 1.61 per cent of hydrobromic and 0.65 per cent of arsenious acids.

An apparently pure tribromide of arsenic, at least much purer than that obtained by the preceding formula, may be prepared by Nickles' process (as confirmed by Slocum in *Am. J. Ph.*, 1883, May), mentioned in New Rem., 1883, p. 209.

No. 1,219.—**Bottle-Glue or Sealing Material** (J. P.)

A useful bottle-glue, which is insoluble in water and particularly suitable for sealing bottles containing volatile liquids, such as chloroform, ether, alcohol, etc., may be prepared by soaking glue or gelatin in water, dissolving it in glycerin, then adding tannin (about two ounces for every pound of glue) and heating the mixture on a water-bath until perfectly homogeneous, and as free from excess of water as possible. It may be colored, if desired. When wanted for use, it is melted and applied to the mouth of the bottles.

No. 1,220.—**Brownish-black Hair Dye** (K.).

A very good brownish-black or dark-brown hair-dye may be prepared from the fresh green shells of chestnuts, walnuts or butter-nuts, by boiling the shells with water, concentrating the liquid to an extract, and dissolving the latter in four parts of diluted alcohol. Before applying this preparation to the hair, the latter must be deprived of fat by means of ammonia, borax, or the carbonate of an alkali.

No. 1,221.—**Prescription Manual** (R. H. C., Galt, Mo.)

The following can be well recommended: "A Manual of Prescription Writing," by Matthew D. Mann, A.M., M.D., etc. New York: G. P. Putnam's Sons, $0.75. "Prescription Writing, Designed for the Use of Medical Students who have never studied Latin," by Frederic Henry Gerrish, M.D., etc. Portland, Me.: Loring, Short and Harmon, $0.50; and "Lessons on Prescriptions and the Art of Prescribing," by W. Handsel Griffiths, Ph.D., L.R.C.P.E., etc. London: Macmillan & Co., $1.25.

No. 1,222.—**Syrup of Hypophosphite of Iron** (R. G. W.).

A permanent syrup of hypophosphite of iron—and of other hypophosphites—may be made by the method recommended by Prof. C. L. Diehl, published in New Rem., 1882, 267.

The process for making the above comprises two steps; *first*, the preparation of a freshly-precipitated magma of ferric hypophosphite; *second*, the solution of the latter and conversion into a syrup.

1. Preparation of ferric hypophosphite:

Dissolve 150 grains of hypophosphite of calcium in 4 fl. oz. of distilled water, if necessary by the aid of a *gentle* heat, and filter the solution. To the cold solution add, carefully, solution of ferric chloride (liquor ferri chloridi), as long as a precipitate is formed. Collect this on a close muslin cloth, drain well, and express firmly; then pour upon the magma 1 fl. oz. of distilled water, and express again.

2. Syrup of ferric hypophosphite:

Dissolve the magma obtained in the foregoing process, which contains, theoretically, 128 grains of dry ferric hypophosphite, in 1 fl. oz. of orange-flower water, with the acid of 128 grains of citrate of potassium; then add enough distilled water to make the solution measure 9 fl. oz. In this dissolve 13 fl. oz. of sugar, and filter the resulting syrup. 1 fl. drachm contains 1 grain of ferric hypophosphite.

No. 1,223.—**Prescription Difficulty** (D. W. S.).

This correspondent says: "I have to mix tincture of cannabis indica and bromide of sodium, very frequently, and have great trouble in having the cannabis precipitate. I make a solution of bromide of sodium in glycerin and water, and then add of a mixture of 1 part of tincture of cannabis and 2 parts of glycerin. But, after standing a short time, the cannabis is al-

ways thrown down. How can I combine the two, without having the trouble referred to?

Tincture of cannabis indica contains a large amount of resin which is insoluble in aqueous liquids, and requires strong alcohol for solution. As bromide of sodium is not very soluble in alcohol (it requires 13 parts), no clear alcoholic mixture of the two substances can be prepared; and even if this could be done, the alcohol would probably be therapeutically contra-indicated in cases where these drugs are given. There remains, therefore, nothing else than to endeavor to keep the precipitate *in suspension*. The best way, probably, is to use a little tincture of soap-bark, but we are clearly of the opinion that this should be used only with the concurrence of the prescribing physician. The quantity requisite to prevent precipitation is quite small and, in our opinion, without therapeutic effect. Probably, 1 fluid drachm might be sufficient for a 4-oz. mixture containing some water. Care should be taken that, if any resin of cannabis separates, it may rise *to the top*, which may be done by using a proper quantity of syrup (instead of water) to increase the density of the solution. Then, even if the tincture of soap-bark cannot keep the resin in suspension permanently, the latter will collect on top, and may be re-incorporated by shaking once or twice.

No. 1,224.—**Carmine Solution** (C. Ph. G.).

The formula for carmine solution, which we quoted, on page 338 of our last volume, from Prof. Lloyd's book on elixirs, contained an error which escaped us, but which has been corrected in the new edition of this work. The quantity of glycerin had not been indicated. It should read as follows:

Carmine, No. 40.....60 grains
Distilled Water,
Glycerin, of each.... 4 fl. oz.
Ammonia Water, a suff. quant.

Powder the carmine, and triturate with the water, gradually adding ammonia water, until the carmine disappears, and a dark red liquid, free from insoluble matter, remains. To this add the glycerin, and mix.

No. 1,225.—**Extract of Beef** (H.).

Analyses of commercial extract of beef have been published by various authors, for instance by A. Ott in *Dingler's Polytechnisches Journal*, vol. 211, p. 46; by J. Ringl, *ibid.;* by F. Wagner, *ibid.;* by Fresenius in the *Berichte der landwirthsch. Versuchsstation*, Darmstadt, 1874. You will also find the composition of a number of different commercial extracts of beef on p. 273 of NEW REMEDIES for 1882, which article will also give you other valuable information. Compare also, NEW REMEDIES, 1881, p. 218; 1880, p. 9; 1883, 56. Besides numerous articles scattered through periodicals and encyclopedias, we are not aware of a special work treating of extracts of beef.

No. 1,226.—**Manufacture of Alum** (H.).

For works of reference on this subject we can recommend Muspratt's Chemistry and Fr. Jünemann, Die Fabrikation des Alauns, etc., 8vo, Wien (Hartleben. 2.50 marks).

No. 1,227.—**To Keep Water from Freezing** (Dr. J. C. H.).

1. What percentage of alcohol *alone* is necessary to keep water from freezing at 32° F. and 0° F.? 2. What proportion of glycerin alone at same temperature? 3. And what proportion of a mixture of equal parts of alcohol and glycerin? It is desired to ascertain the exact amount or the least amount necessary.

To answer this question it will be necessary to make quite an extended series of experiments which involve no special skill, but will consume some time. As we happened to have at our disposal, just at present, a very accommodating winter temperature of about 32° to 30° F., we made a series of mixtures containing alcohol and water, glycerin and water, and alcohol + glycerin and water, and exposed them for over 24 hours to the cold air. A bottle containing pure water, exposed at the same time, froze over night (lowest temperature registered 28° F.). All the mixtures we made, the lowest of which contained four parts of water to one part of the liquids above mentioned remained liquids. We do not think that we have arrived at the limit, but we have probably come pretty close to it. We suggest that our correspondent continue the experiment himself. Let him prepare a series of mixtures, say one or two fl. oz. of each, of water and the other liquids taking 95, 90, 85, 80, 75, 70, etc., parts of the former, and 5, 10, 15, 20, 25, 30, etc., parts of the latter, put them into vials or tin boxes and expose them to the temperature at which the experiment is to be made. In this way, he will easily ascertain the lowest percentage of alcohol, etc., which will keep the water from freezing. We are not aware of any publication in which the desired proportions for the above temperatures are set forth.

No. 1,228.—**Precipitate formed by Mixing Solutions of Extract of Meat and Ammonio-Citrate of Iron** (F. H.).

"When a clear solution of Liebig's Extract of Meat in Sherry is added to a clear solution of Ammonio-Citrate of Iron in Sherry, a deposit occurs immediately. I do not know the cause. Can you tell me?"

Under ordinary circumstances, when the solutions are made in the cold, we believe there should be but little, if any precipitate. On trying the mixture on a small scale, we observed not more than a very faint cloudiness within a few hours, and this cleared up on addition of acetic acid. Still, it must be remembered that extract of meat contains acid phosphates soluble in water but insoluble in strong alcohol. Sherry being comparatively weak in alcohol, dissolves a certain amount of these salts, which are very apt to be gradually precipitated. We would suggest that our correspondent examine whether this precipitate occurs in his hands, always; also, whether the strength of the two solutions has any bearing on the formation of the precipitate.

No. 1,229.—**Solution of Chinoidine** (S. D. L. L).

This correspondent wants to know how to dissolve chinoidine without using an acid. In reply we would say that the only suitable solvent appears to be alcohol. It may be made into an elixir by dissolving a suitable quantity in strong alcohol to which some flavoring oils have been added, and then adding glycerin and syrup. Still, no matter how it is dissolved, it always has more or less of a disagreeable, bitter taste. The best way to administer it, is in form of powder, or in capsules.

No. 1,230.—**Logwood Ink** (Dr. N. B. S.).

We are asked the following question:

"Do you know any *sure* way of making the Logwood and Chromate of Potassium Ink (Runge's) so that it will not gelatinize or deposit its coloring matter? I have used the carbonate of soda method unsuccessfully."

In reply we have to state that we do not know any certain method. But, so far as we can learn from various authorities in our possession, it seems that there should be but little if any sediment if the ink was properly made.

On the authority of a German technological journal, we gave some formulæ for logwood inks on p. 92 of NEW REM. for 1881, and a correction to these by Mr. Turner Bushwell was published on p. 116 of the same vol. At present we will publish a correct formula for making Runge's Logwood Ink. Perhaps the trouble will disappear if this is carefully followed.

Twenty kilos (44 lbs.) of finely rasped logwood are boiled in a kettle with 120 liters (32 gallons) of water, until about 20 liters (5¼ gallons) of the water have been boiled off. The decoction, which has a fine red color, is then separated from the chips by straining through close-woven muslin, and poured into a tub or other suitable vessel.

A solution of 1 part of neutral (yellow) chromate of potassium having been made in 10 parts of water, a quantity of this solution, containing exactly 10 grammes of the salt, is now added, and the liquid stirred. If necessary more of the chromate solution is added until a sample transferred to a test-tube no longer appears violet or reddish by transmitted light. The addition of the chromate solution is interrupted when a sample has a black color and no longer permits light to pass.

In order to have data on hand for subsequent operations, specimens of writing, prepared with each sample of ink, up to the moment of its completion, may be kept. The exact ratio of logwood and chromate should also be noted. After the writings have been exposed for some time, it will readily be perceived which proportion will be the best.

This would be of particular use to know if the logwood used in the process is only a small portion of a large stock on hand, all of which might be supposed to be of the same quality.

Instead of using logwood itself, the commercial extract *may* be used, but as this varies in quality, it does not always yield a satisfactory result.

The proper proportions are:

Extract of logwood.. 2 kilos.
Yellow chromate of potassium..... 10 grms.
Water.....100 kilos.

The salt is dissolved in the water, contained in a tub. The extract is broken into small pieces, tied loosely in a cloth and suspended in the liquid. It will dissolve with production of a deep-black color. If necessary, a little more chromate may be added.

Runge's formula contains no alum, so far as we know. There are, however, several other formulæ for logwood ink quoted here and there, which contain alum as an ingredient.

Compare also NEW REM., 1880, p. 375.

No. 1,231.—**Wine of Pepsin** (R. G. W.).

A clear Wine of Pepsin may be obtained as follows:

Pepsin (not saccharated).....	40	parts.
Glycerin.....	100	"
Hydrochloric Acid.	10	"
Sherry Wine 2,000		"

Triturate the pepsin with the glycerin and a little of the wine; then mix with the remainder of the wine and the acid. Set the mixture aside for five or six days in a dark place, occasionally agitating. Finally filter through a well wetted double filter, returning the first portion of the filtrate until this this runs off clear.

If it cannot be obtained clear by filtration, some clarifying agent must be used. For this purpose, isinglass or the white of eggs may be used. Russian isinglass is beaten with a hammer until it may be easily disintegrated by the fingers. A little water is then poured upon it and renewed several times during 24 hours, to remove all foreign odor. All the excess of water is now squeezed out, the isinglass picked into fine shreds, put into a suitable bottle or vessel and some of the wine poured on it, with which it is

most thoroughly mixed by whipping with a quirl or other instrument. (If a gallon of wine is to be clarified, about 30 grains of isinglass are required, and these are to be intimately mixed or whipped with about 2 or 4 oz. of the wine.)

This mixture is then added to the bulk of the wine, and the whole set aside in a dark place until the impurities have settled, which will require eight or ten days.

White of eggs may be used in a similar manner.

No. 1,232.—**Flavoring for Carbolic Acid** (L.).

It is altogether a matter of taste what flavoring would be preferred for a solution of carbolic acid to be used as a gargle. Any of the more pleasant essential oils, such as oil of orange, lemon, sassafras, anise, fennel, peppermint, etc., or some orange-flower or rose water may be used. There is almost no end to the changes that may be rung.

No. 1,233.—**Calo and Chlorate of Potassium.**

DEAR EDITOR:—By igniting on platinum foil calomel and potassic chlorate, a red mass is obtained, consisting of mercuric oxide and mercuric chloride: $3Hg_2Cl_2 + KClO_3 = 3HgO + + 3HgCl_2 + KCl$.

These products are always formed in constant proportions as related to the molecule. The present accepted chemical constitution of calomel is

Hg—Cl
|
Hg—Cl.

Does not the above fact show that the chlorine atoms are in combination with one mercury atom, and that the mercuries play a separate and distinct part in the molecule? Yours, etc.,

E. D. DRAKE.

TOLEDO, O., December 25th, 1883.

We do not think that the above could be reckoned to be certain proof for the theory alluded to by our correspondent, although it might be at first supposed to be one. If the reaction is supposed to take place between *three* molecules of calomel and *one* molecule of chlorate of potassium, then the oxygen of the latter will combine with the whole of the mercury of one atom of calomel and with *one-half* of the mercury of a second atom. It is this circumstance which might induce one to uphold the above-mentioned theory. Yet we may also, with perfect safety, suppose that the reaction takes place between *six* molecules of calomel and *two* molecules of chlorate of potassium. In this care, all the oxygen of the latter unites with all the mercury of three molecules of the calomel, while the liberated chlorine unites with the other three molecules of calomel to form bichloride.

No. 1,234.—**Manufacture of Bleaching Powder** (S. M.).

This correspondent surprises us by the announcement that he "thinks of engaging in the manufacture of bleaching powder."

He asks for certain commercial information, and also wants to know if there is any book which treats of its manufacture and preparation for the market.

We are sorry to inform our correspondent that unless he is the possessor of a very large capital, and has the best facilities for receiving his crude materials and for shipping his products, he will not succeed. Besides, the very fact that he does not appear, as yet, familiar with any literature on the subject makes it very doubtful whether he would succeed even if he had the capital.

Bleaching powder or chloride of lime, though one of the most important and largest turn-outs of chemical works, is really more of a by-product, or rather, the process for making it is carried on just as much for the purpose of preventing immense amounts of chlorine from being discharged in the air and lost, as for the purpose of preparing the product itself. In large alkali (soda) works, where thousands of tons of common salt are converted into soda ash and sal soda by means of sulphuric acid (made on the spot, in immense quantities), the escaping vapors of hydrochloric acid are made to traverse large towers where the gas comes in contact with a fine rain of water, and is converted into liquid acid. This is afterwards decomposed by manganese dioxide, and the generated chlorine conducted into chambers containing lime.

It is impossible to make chloride of lime economically for itself; it can only be made with profit as a side product of the soda industry.

The most complete work on the alkali manufacture (including chloride of lime) is the following: Lunge, G., A Theoretical and Practical Treatise on the Manfacture of Sulphuric Acid and Alkali. 3 vols. 8vo. London: 1880 -1882. ($32.00.)

Another useful work is: Lomas, J., Manual of the Alkali Trade, Sulphuric Acid, Sulphate of Soda. Bleaching Powder. 8vo. London: 1880. ($17.00.)

Formulæ and Information Wanted.

a) Composition of *Gombault's Caustic Balsam.*

b) Flavoring ingredients in *Sozodont Tooth Wash.*

c) One correspondent asks "how Ginseng (!) is clarified." The writer is asked to revise his query.

d) Hampton's Vegetable Tincture. Correspondent wants to know whether it has ever been analyzed.

e) Compound Tincture of Orgeat.

f) Harden's Fire Grenade.

g) Blair's Pills for Rheumatism.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

288,323 and 288,324. *Process of and Apparatus for making Ammonia.*—Thomas B. Fogarty, Brooklyn, N. Y.

288,402. *Apparatus for Measuring the Density of Liquids.*—Nicholas Borodoulin, Krakov, Russia.

288,487. *Gas-Chamber in Soda-Water Apparatus.*—Charles A. Prentiss, Washington, D. C.

288,547. *Percolator.*—Ezra W. Carter, Cohoes, and David R. Smith, Green Island, assignors of one-half to Richard S. Clark and John McCleary, both of Cohoes, N. Y.

288,603. *Pneumatic Stopper for Bottles.*—Wilhelm von Schlieffen, Schlieffenburg, Germany.

288,617. *Stand for Bottles and Flasks.*—Daniel R. Bradley, New York, N. Y.

288,630. *Veterinary Medicine.*—Furney F. Green, Comanche, Texas. Consists of wormseed oil, oil of turpentine, castor-oil, tincture of myrrh, common molasses, pulverized bark of black alder (*Prinos*), pulverized white Indian hemp root (*Apocynum cannabinum*), pulverized bitter-root (*Apocynum androsæmifolium*), pulverized pink-root (*Spigelia*), pulverized mandrake-root (*Mandragora officinalis*), powdered balmony (*Chelone glabra*), and Socotrine aloes.

288,702. *Manufacture of the Extract of Malt.*—James W. Forbes, Cincinnati, Ohio.

288,744. *Machine for Filling Bottles.*—Horace M. Tubbs, and Edwin T. Swartz, Philadelphia, Pa., assignors to Charles E. Hires, same place.

288,828. *Syringe.*—Patrick J. McElroy, East Cambridge, Mass.

288,859. *Bottling Faucet.*—Alfred Rigney, New York, N. Y.

288,860. *Confection Grinding Apparatus.*—Jas. B. Rivera, Baltimore, Md.

288,870. *Rotating Sample-Stand.*—Christian A. Schmidt, New York, N. Y.

288,945. *Truss.*—William B. Kimball, Peterborough, N. H., assignor to Elbridge Howe & Co., same place.

288,972. *Truss.*—Issac P. Bottsford, Cromwell, Conn.

289,963. *Head for Siphon Bottles.*—John Brown, Medford, Mass.

289,100.—*Deodorized Fat or Oxyline.*—John Hobbs, Boston, Mass.

289,293. *Apparatus for Concentrating Sulphuric Acid.*—Samuel T. McDougall, Brooklyn, N. Y.

289,487. *Hog-cholera Remedy.*—George Washington Wynns, Union, N. C. Consists of opium, camphor, guaiacum, capsicum, peppermint, sulphate of iron, and sulphate of copper.

289,528. *Syringe.*—George Washington Goodner, Chicago, Ill.

289,547. *Dispensing Faucet for Soda-Water and Other Beverages.*—Estate of John Matthews, New York, N. Y.

289,586. *Perfumery Stand.*—Albert Warmer, Hoboken, N. J.

289,621. *Cleaning Compound.*—William E. Clark, St. Louis, Mo. Composed of sulphuric ether, alcohol, salts of tartar, oil of cloves, pulverized borax, ammonia salts, and deodorized gasoline.

289,673. *Tonic Bitters.*—Henry Litz, Baltimore, Md. Consists of high wines, distilled water, hops, unripe oranges, zedoary-root, ginger-root, cardamum seeds, star anise seeds, bitter orange-peel, gentian root, cape aloes, myrrh, anisated liquor of ammonia, and tincture of nux vomica.

289,706. *Process and Apparatus for Distillation.*—James G. Pontefract, Pittsburgh, Pa.

289,714. *Bottling Device.*—Alfred Rigny, New York, N. Y.

289,737. *Tumbler Washer.*—John Tyler Whittle, Baltimore, Md., assignor of one-half to Jerome I. Vogeler, same place.

289,777. *Soda-Water Apparatus.*—John Matthews, New York, N. Y., Elizabeth Matthews, George Matthews, and Frederic Matthews, executors of said John Matthews, deceased, all of same place.

289,780. *Capsule Machine.*—Charles F. Purdie, Detroit, Mich.

289,785. *Evaporating Apparatus.*—John Stuart, Fraer, Iowa.

289,807. *Can Filling Machine.*—George W. Brown and Harry Lambert, Salem, Mass.

289,813. *Label for Bottles.*—William B. Dean, New York, N. Y.

289,814. *Combined Stopper, Cap, and Label for Bottles.*—William B. Dean, New York, N. Y.

289,836. *Process of and Apparatus for Obtaining Boracic Acid from Native Borate of Lime.*—John B. Hobson, San Francisco, Cal.

289,858. *Disinfectant.*—George E. Rice, Boston, Mass. Consists, essentially, of pipe-clay, phenol, caustic soda, sulphate of iron, chloride of zinc, and sulphite of lime, or its equivalent.

289,922. *Hair Tonic.*—Alexander Miles, Duluth, Minn. Composed of pine-tar, magnesium carbonate, glycerin, alcohol, quinia sulphate, extract of sage, and water.

290,095. *Truss Pad.*—Sherman R. Nye, Chicopee Falls, Mass.

290,105. *Evaporating Liquids.*—Narcisse Pigeon, Yonkers, N. Y.

290,252. *Manufacture of Lactates and Lactic Acid.*—George Austin Marsh, Littleton, Mass., assignor to the

Avery Lactate Company, Portsmouth, N. H.

290,253. *Manufacture of Lactates for the Production of Lactic Acid.*—George A. Marsh, Littleton, Mass., assignor to the Avery Lactate Co., Portsmouth, N. H.

290,294. *Manufacture of Lactic Acid and Lactates.*—Charles O. Thompson, Terre Haute, Ind., assignor to the Avery Lactate Co., Portsmouth, N. H.

290,561. *Siphon for Vessels.*—Frank J. Flockler, Allegheny City, Pa.

290,583. *Capsule Machine.*—Fred. A. Hubel, Detroit, Mich.

ITEMS.

California Pharmaceutical Society.—The regular quarterly meeting was held at the College Hall, 113 Fulton Street, Thursday evening, Dec. 13th, President Keil in the Chair. The meeting was well attended. Five new members were elected, and a number of interesting papers read; among them a paper on Bromhydric Acid, by Mr. A. Tommer, being a modification of Prof. Markoe's process; this paper was the continuation of a previous one on the same subject.

Mr. J. H. Barbot read a paper on a new process for making fluid extract of wild-cherry bark, dispensing with the use of alcohol in the menstruum. This paper called forth considerable discussion upon the subject. Mr. McDonnell gave vent, in a humorous way, to some practical notes relating to the spreading of blisters, followed by a paper on citrine ointment.

Mr. Runyon exhibited one of Dr. Squibb's apparatus stands, also a Berry pressure percolator, and a Franciscus gelatin pill-coating machine, which had been presented to the college and accepted with thanks. Mr. Lengfeld exhibited a specimen of ginseng, presented to Dr. Terrill while in Corea. The specimen referred to represented on the inner surface, after being fractured, the form of an idol, and said to be highly valued there when found to have this structure, the specimen alluded to being valued at $200.

Mr. Lengfeld also exhibited some ancient works on pharmacy, materia medica, etc., by M. Nicolas Lemery, published 1727, and a translation into English dated 1737.

E. W. Runyon exhibited an old work by Goulard—a treatise on lead preparations. Mr. Lengfeld called attention to the use of papayotin of late, and exhibited a sample made by E. Merck, of Darmstadt. Dr. Behr related that the juice of Carica papaya was eaten with milk by the natives of the tropics, and gave a full description of it.

Mr. F. C. Keil exhibited a number of samples of comp. syrup of hypophosphites and with iron. Mr. Dawson presented the Soctety with a sample of carbolic crystals made by R. Graesser, of Wales, England, through the kindness of Mr. Campbell.

Mr. Searby exhibited some seeds of Rheum palmatum sent to him from St. Petersburg, Russia, specimens of which he had given to parties who were to determine the most suitable locality for their cultivation; he also read a letter received from Mr. Colcord, Secretary of the National Retail Druggists' Association, which contained many good suggestions, heartily indorsed by the members.

Mr. Lengfeld gave notice that at the next meeting he would propose some alteration and amendment to the Constitution and By-laws, relative to having monthly instead of quarterly meetings.

Mr. Runyon also gave notice of a change in Chapt. II., Article 1, of the By-Laws. The meeting adjourned at 10.40 P.M.

FRED. GRAZER,
Secretary.

South Carolina.—At the last meeting of the State Pharmaceutical Society held in Columbia, the following were elected: *President*, Dr. H. Baers, of Charleston; *Vice-Presidents*, C. P. Aimar, of Charleston; Dr. John May, of Yorkville; *Secretary and Treasurer*, P. Wineman, of Charleston; *Examining Board*, A. W. Eckel, E. S. Burnham, C. F. Panknin, G. J. Luhn.

New York.—The Committee on Legislation of the Kings Co. Pharmaceutical Society, which has furnished much of the efforts that have been made to secure the enactment of a State pharmacy law, recommends another attempt to secure the enactment of the bill presented to the Legislature in 1883, with these modifications, viz., striking off the section imposing on druggists a yearly registration fee of one dollar, and the omission of the clause requiring the Secretary of the Board of Pharmacy to give bonds for securing the money received by the Board.

The Erie County Pharmaceutical Association has continued its Committee on Legislation of last year, viz.: Messrs. R. K. Smither, J. Rieffenstahl, and T. M. Johnson. There are good reports of the forthcoming College of Pharmacy to be established in Buffalo; the members of the Association seem to be about equally divided on the question of the desirability of sustaining the organization of a National Retail Druggists' Association.

Dr. Henry Bence Jones, who, following the death of the author of Fownes' well-known chemistry, carried the work through ten editions, died on the 21st of November, in consequence of an accidental gun-shot wound of the ankle which necessitated amputation.

Charles William Siemens, the electrician and engineer, died Nov. 20th. Ten days previous to his death he suffered a severe fall from which he did not recover, dying from rupture of the heart.

The Firm of Powers and Weightman, of Philadelphia, have admitted to partnership Drs. John F. Weightman, and William Weightman, Jr.

The Druggists Circular, so it is rumored, has become the joint property of Root and Tinker (owners of the *Weekly Drug News* and *Oil, Paint and Dug Reporter*), and Mr. John Newton, the former proprietor.

John Eliot Howard, F.R.S., probably the foremost quinologist of our time, died in London, on November 22d. He was born on December 11th, 1807. After passing through school, he became associated to his father, in the manufacture of chemicals, and devoted particular attention to quinine, becoming, in the course of time, one of the largest manufacturers of this and other cinchona alkaloids. He made detailed and extended researches into the botany and chemistry of the different species of cinchona, publishing a number of valuable works relating to this subject. He was one of the originators of the cultivation of cinchona in the East Indies, and rendered the government valuable services by advice and by chemical assays of cultivated barks. In October last, at a meeting of the Pharmaceutical Society, he was made the recipient of the Hanbury medal, for his distinguished services to science. It is particularly unfortunate that his death occurred just at this time, when the researches of Mr. Trimen on the botany of cinchona in India are promising to revolutionize the whole classification adopted by Howard and others, since the discussions likely to arise between Mr. Trimen and other authorities will elicit much valuable information which would otherwise have remained dormant, although it would already appear as if Mr. Trimen will be able to show that all previous classifications of the species of cinchona have been more or less erroneous.

The Cuban Pharmacopœia.—On the 8th of February, 1883, a commission was charged with the elaboration of a pharmacopœia for Cuba. The Commission is composed of four physicians and four pharmacists, two of the latter, professors at the Faculdad de Pharmacia de la Habana, and two keeping open shop. The four pharmacists were appointed by the Governor General, on the nomination of the Junta Superior de Sandidad. The four physicians were elected by the academy.

The Commission consists of Dr. Nicolas J. Gutierrez, President; Dr. Rafael Cowley, Dr. Juan C. Oxamendi, Dr. José Torralbas, Dr. José Ramos, Dr. Juan Zamora, Dr. Ramon Botet, Dr. Antonio Gonzalez, Dr. Joaquin Barnet.

PHARMACEUTICAL CALENDAR.—FEBRUARY.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.
Fri. 1st.	American Chemical Soc.—8 P.M., Univ. Building, New York City.
Mon. 4th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo, N. Y.
Tues. 5th.	Maryland Coll. Pharm.—Baltimore.
	St. Joseph (Mo.) Pharm. Assoc.
	Connecticut Pharm. Assoc.—Annual Meeting at New Haven.
	Massachusetts Coll. of Pharm.—Boston.
	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.—Annual Meeting.
	National Coll. of Pharm.—Washington, D. C.
Wed. 6th.	Indianapolis Assoc. of Pharmacists.
Thurs. 7th.	Louisville Coll. of Pharm.
Tues. 12th.	Philadelphia Coll. of Pharm. Alumni Assoc.
	St. Louis Coll. of Pharm.
Wed. 13th.	Cincinnati Coll. of Pharm.
Wed. 13th.	New York Board of Pharm.
Thurs. 14th.	Newark (N. J.) Pharm. Assoc.
	Philadelphia Coll. of Pharm. Alumni Assoc.
	Maryland Coll. of Pharm.—At Baltimore.
	N. Y. German Apoth. Soc.—10 P.M., Beethoven Hall.
	Lancaster Co. (Pa.) Pharm. Assoc.
Tues. 19th.	St. Louis Coll. of Pharm. Alumni Assoc.—8 P.M.
	Philadelphia Coll. of Pharm.
	St. Joseph (Mo.) Pharm. Assoc.
Thurs. 21st.	New York Coll. of Pharm.
Tues. 26th.	Boston Druggists' Assoc.
Thurs. 28th.	Kings Co. (N. Y.) Board of Pharmacy.—At Brooklyn.

American Druggist

Vol. XIII. No. 3. NEW YORK, MARCH, 1884. Whole No. 117.

[ORIGINAL COMMUNICATION.]

Boroglyceride, and its Sodium and Calcium Compounds.*

BY WILLIAM S. FLINT, PH.G.

THIS preparation was discovered by Professor Barff, of London, England, while experimenting with different substances to obtain a compound for the preservation of meat.

He explains the process of manufacturing the boroglyceride in a paper published in the *Chemist and Druggist* for April, 1882.

Heat 92 grammes of glycerin with 62 grammes of boracic acid (154 grammes in all), an action takes place and steam is given off. At a tolerably high temperature, add the boracic acid in small quantities with frequent stirring. At first the acid dissolves rapidly; toward the end of the operation more slowly. If the mixture be allowed to cool directly after the boracic acid is all dissolved, a crystalline precipitate separates out, in which case, probably, chemical combination with the glyceryl has not taken place. The weight will be found to be 131 grammes, and the substance has a sweet taste.

Heat a second time; a crystalline precipitate separates out on cooling, and steam is freely given off. When cold the product will weigh 116 grammes. As the combination becomes more perfect, the solubility in water is increased. Heat a third time; no crystalline precipitate separates out, but the mass when cold sets like ice, is brittle, chips readily, and the pieces are hard and dry. The boroglyceride thus formed communicates no flavor whatever to the substances to which it is added, or which are immersed in the preservative solution. In proportion as the glycerin is decomposed and chemically united with the boracic acid, the sweet principle disappears, being a total loss of 54 grammes, corresponding to three molecules of water.

He explains the chemical combination by the following equation:

$C_3H_8O_3$ glycerin + H_3BO_3 boracic acid + heat = $C_3H_5BO_3$ boroglyceride, + $3H_2O$ water.

I heated 50 grammes of glycerin to a temperature of about 300° F., and added 50 grammes of crystallized boracic acid in portions till dissolved, and allowed it to cool. An opaque mass was thus obtained, without crystalline appearance. Heating to the same temperature for some time, and allowing it to cool, a transparent solid product was obtained, resembling boroglyceride. Again heating, and allowing it to cool, the product was brittle and resembled glass. Allowing it to stand for a few days it became opaque. There was very little effervescence during the process.

Using 92 grammes of glycerin and 62 grammes of powdered boracic acid, and heating to 300° F., adding the acid in portions, the effervescence was not very marked, and when dissolved it weighed 125 grammes, and was a thick liquid with an opaque appearance.

Again heating to the same temperature, continuing the heat for some time and allowing it to cool, crystals were seen, and the weight was 110 grammes. Heating for the third time, a very hard and brittle substance was obtained, but it still remained opaque.

Heating 92 grammes of glycerin to a temperature of 300° F., and adding 62 grammes of crystallized acid in portions, the effervescence was very decided, steam and irritating vapors were given off. Continuing the heat, with frequent stirring, until the weight was reduced to about 100 grammes, the product was solid, brittle, transparent, of a decided amber color, and did not become opaque upon long standing.

The following operation gave the best result, a very light-colored product being obtained:

I heated 184 grammes of Bower's glycerin in a porcelain capsule to a temperature of 240° F., and added 124 grammes of Morson's crystallized boracic acid, in portions, with constant stirring. There was no effervescence, and when dissolved, a transparent, thick liquid was obtained, the weight of which was 270 grammes. Continuing the heat at the same temperature, with frequent stirring, steam was given off, and it became more fluid. As the combination became more perfect a film was formed upon the surface; it became thicker, and when reduced to 200 grammes it was poured upon a sheet of tin, well oiled with vaselin, and allowed to cool. The whole operation required about four hours. When nearly cold, it was divided into squares with a large spatula, and when thoroughly cooled it was broken in pieces and quickly transferred to well-stoppered vials. It readily absorbs water from the atmosphere, becoming sticky and greasy. A porcelain or porcelain-lined dish should be used in its preparation, as it is least affected by boracic acid at high temperatures.

This product was found to be readily soluble in hot water, less freely so in cold water. A white coating is formed upon the pieces during solution in the latter, requiring agitation to hasten the solution. It is soluble in hot alcohol, and to a moderate degree in cold alcohol. It is insoluble in ether, but softens when allowed to stand in chloroform for some time. Heated upon a water-bath, it becomes fluid at a temperature of about 212° F., and mixes with glycerin in all proportions, forming a transparent mixture.

Glycerin, when heated, readily dissolves boracic acid, but it has an objectionable sweet taste. The solubility at different temperatures is shown by the following:

	DISSOLVE AT	PARTS OF BORACIC ACID.
100 parts of glycerin	50° F.	20
	120° F.	30
	130° F.	43
	170° F.	58
	212° F.	72

Equal weights of glycerin and borate of sodium or borate of calcium, heated to 204° F., combine with effervescence without the evolution of irritating vapors, and require constant stirring to prevent burning upon the bottom of the capsule. They form compounds resembling boroglyceride, but absorb water more readily, and do not retain their shape when broken in pieces.

One part of borate of sodium dissolved in four parts of glycerin forms the glycerite of borax of the Pharmacopœia of 1870. Borax when exposed to a high temperature, gives off its water of crystallization, and is converted into a white spongy mass which, at a red heat, melts and on cooling forms a transparent glass.

Boroglyceride has been used with success as an antiseptic in the hospitals of London [and elsewhere]. It is not only a reliable antiseptic, but promotes the rapid healing of wounds. Being inodorous, tasteless, and innocuous, it is more agreeable and safer to use than carbolic acid, iodoform, thymol, naphthalin, resorcin, and various other preparations which have been recommended for that purpose.

As a preservative agent it should be used in the form of a solution containing from 2% to 5% of the salt.

As an antiseptic it may be employed in the form of an ointment, or by medicating absorbent cotton with an alcoholic solution and drying, or in an aqueous solution. The five-per-cent solution in water is not affected by tannin, tincture of chloride of iron, Monsel's solution, dilute acids, or the ordinary astringent tinctures, thus rendering it valuable for use in gargles and throat sprays.

It may be made into an ointment with petrolatum or simple ointment, by melting with a small amount of glycerin, adding the base previously melted, with constant stirring till cold. It mixes readily with ointment of rosewater, without the addition of glycerin, by simply melting the boroglyceride, adding the ointment, and stirring until cold. The following formula makes a very nice ointment of a beautiful golden color, containing 25% of boroglyceride, or the equivalent of a drachm of boracic acid to an ounce of the ointment:

Boroglyceride	30 parts
Glycerin	20 "
White wax	10 "
Petrolatum (or vaseline)	60 "

Melt the boroglyceride with the glycerin and add the wax previously melted with the petrolatum; stir until cold.

* Abstract of a thesis presented to the Massachusetts College of Pharmacy, Session of 1883-83.

Synthesis of Nicotine.

JULIUS MENSEL states *in the Pharmaceutische Zeitung*, Sept. 26th, 1883, that he has formed nicotine artificially in the following way.

Benzoic acid is dissolved in acetone, and the whole mixed with concentrated sulphuric acid. A precipitate is thereby formed, which on heating redissolves in the excess of acetone. When cool, a solution of ammonia gas in absolute alcohol is added, whereupon ammonium sulphate precipitates out, and nicotine is found with other products of decomposition and undecomposed acetone in the supernatant liquid.—*Chem. and Drugg.*

Benzoate of Cinchonidine.

BENZOATE of cinchonidine is recommended by M. Bouchardat in mild cases of diabetes with excessive production of uric acid. It is made, according to M. Byasson, by dissolving freshly-precipitated cinchonidine, prepared from 200 parts of the sulphate, in a solution of 60 parts of benzoic acid dissolved in 200 parts of alcohol of 90 per cent, poured into a porcelain vessel containing 3,000 parts of boiling distilled water. The solution of the salt, before being allowed to cool, should, if necessary, be rendered slightly alkaline by the careful addition of ammonia.

The salt crystallizes on cooling.—*Pharm. Journ.*

Purity of the Sulphate of Cinchonidine in Use and the Pharmacopœia Test.*

SAMPLES of sulpate of cinchonidine put on the market by six manufacturers were obtained, five of the manufacturers being in the United States, and one in Germany. It could not be ascertained that any other American manufacturers produce the article. The samples were taken, or were credibly assured to have been taken from the manufacturer's cans, with the exception of one sample that had been canned by a wholesale dealer who gave a statement of the manufacturer's name. In all, twelve samples were obtained and tested—four samples of one manufacturer, three samples of another, two of another, and one sample from each of three manufacturers whose brands of this article are not extensively used.

The test for cinchonine and quinidine sulphates, as directed in the United States Pharmacopœia of 1880,† was applied to each sample, with exact and uniform control of the conditions.

The test limit only requires that not more than a slight turbidity should appear on adding, or immediately, or very soon after adding the ammonia. In applying the test, after adding the ammonia, the liquids were set aside and examined from time to time, noting the temperature, until after fifteen to eighteen hours' standing, for the occurrenc of turbidity.

All but one of the twelve samples were approved by the test, according to the pharmacopœial standard. In fact, all but one were found to show a satisfactory margin of purity beyond the bare limit of the pharmacopœia, no one of the eleven giving any turbidity immediately, or very soon after adding the ammonia. In the case of eight of the samples, a slight turbidity appeared only after standing for fifteen to eighteen hours at 70° to 80°F. With two of the samples a slight turbidity appeared only after standing six hours, at about the same temperature as the others. With one sample the slight turbidity appeared after standing some time, the number of hours not noted. The one sample, which did not come up to the standard, gave a result in very strong contrast with the results of all the other, the addition of the ammonia causing at once more than a turbidity, an abundant precipitate. This sample was the one which was canned by a wholesale dealer, not a manufacturer. In investigation as to the delicacy of the pharmacopœial test, some work was done, to gain further evidence as to the interpretation of the test limit, namely: "absence of more than 0.5 per cent. of sulphate of cinchonine, or of more than 1.5 per cent of sulphate of quinidine." This value of the limit has been partly supported by the experiments of Mr. Teeter,‡ and some other statements, but additional evidence was deemed desirable. Pure sulphates of cinchonidine, cinchonine, and quinidine were prepared, as done by Mr. Teeter, and previously by Mr. Thum.§ Mixtures of the pure cinchonidine salt, successively with one per cent, one-half per cent, and one-fourth per cent of the pure cinchonine salt, and again of the pure quinidine salt were subjected to the test of the pharmacopœia, as before described and were found to give results as follows (the temperatures being those of the atmosphere at conclusion of the test).

Cinchonidine sulphate with admixture of cinchonine sulphate:

1%, a precipitate on standing 10 minutes, 70° F.

½%, turbidity on standing 15–16 hours, 70° F.

¼%, no turbidity on standing 24 hours, 72° F.

With admixture of quinidine sulphate:

1%, decided turbidity at once, 70° F.

½%, slight turbidity after 2–4 hours, 76° F.

¼%, no turbidity on standing 24 hours, 80° F.

The results agree quite well with those of Mr. Teeter, and from both his investigation and this briefer one it would appear, contrary to ordinary expectation, that this test reveals quinidine in very nearly as small quantities as it does cinchonine, and that the interpretation of the pharmacopœial test limit might be so modified as to read, absence of more than one per cent of either sulphate of cinchonine or sulphate of quinidine. It follows of course from market values that there is greater liability of considerable proportions of cinchonine than of quinidine salt, but imperfect separations in manufacture may leave either impurity in quantities somewhat larger than fair pharmaceutical purity should admit.

Salicylate of Bismuth.

IN addition to what we have heretofore printed on this subject, some recent statements of Mr. Ragoucy, of Paris, on the constitution of the salicylates of bismuth will be of interest.

Before quoting these, however, we would say that a process for preparing the salt given by us on p. 280 of our last volume, as well as another by Dr. Wade, on p. 313 (*ibid.*), has been criticised by Dr. Wolff, of Philadelphia, because the products of both processes are contaminated with subnitrate. We have in stock several samples made at different times by the first-named process, and have found one of them (the first one made) to be *almost* free from nitrate. The minute quantity present could not interfere with its therapeutic value. Another sample, however, contains a good deal more, and besides, a small quantity of free salicylic acid, which was not completely removed by washing. It would seem, therefore, that the proportion of subnitrate present is likely to vary in different lots made at different times.

Ragoucy has arrived at the same conclusion, as will be seen further on. Dr. Wolff (*Am. Journ. Ph.*, 1883, 554), proposes two processes, which he states yield unexceptionable products.

1. Having ascertained that a glycerin solution of crystallized nitrate of bismuth bore dilution with 1 or 2 parts of water, before precipitating any basic nitrate, he decomposed a glycerin solution of the acid nitrate by a concentrated solution of salicylate of sodium. This produced basic salicylate of bismuth, nitrate of sodium, free nitric acid, free salicylic acid, and water. The precipitate was washed first with cold, then with hot water, and lastly with alcohol. Its composition is, probably, $BiO.C_7H_5O_3$.

2. Since basic salicylate of bismuth, when treated with a concentrated solution of bicarbonate of sodium, yields basic carbonate of bismuth and salicylate of sodium, Dr. Wolff inferred that basic nitrate of bismuth would also yield, on boiling with a concentrated solution of salicylate of sodium, a basic salicylate of bismuth. This was found to be the case. The precipitate, being well washed with hot water, had the same appearance as that obtained by the other process.

3. The salt may also be produced by boiling together freshly precipitated oxide of bismuth and salicylic acid. But the product is usually contaminated with undecomposed oxide.

Ragoucy denies the correctness of Jaillet's formulæ of the salt (NEW REM., 1883, 371), in which it appears that the hydrogen of salicylic acid is not replaced by a metal, while, on the other hand, oxygen is eliminated. On theoretical grounds he assumes that the normal salicylate of bismuth is so constituted that not only the atom of hydrogen giving it the character of an acid is replaced by a metal, but also the hydrogen of the carboxyl-radical:

Salicylic acid, $C_7H_6O_3$, or $HC_7H_5O_3$ may be considered as benzol (C_6H_6) in which one H is replaced by carboxyl (COOH), and the other by hydroxyl (OH):

$$C_6H_4.COOH.OH$$

A normal salicylate is formed when the hydrogen of the OH is replaced by a base. When the other hydrogen is also replaced, a body results which is known to exist, for instance, as an intermediate product in the preparation of salicylic acid: $Na_2C_7H_4O_3$. Normal salicylate of bismuth, according to Ragoucy's views, is of this class, and would have the composition $Bi_2(C_7H_4O_3)_3$, and he thinks that there is a basic salicylate, corresponding to the subnitrate $BiO.C_7H_5O_3$.

[There can hardly be a doubt that the last-named compound exists and has the composition here quoted. As to the composition given for the normal salicylate, it would be unsafe to accept it until proven by analysis which, indeed, is even necessary for the basic salt.]

The same author also speaks of the preparation of the salt and the frequent presence in it of free salicylic acid.

It is known from the researches of Ditte that the dissociation of the acid nitrate of bismuth [on dilution with water] continues, at one and the same temperature, until the solution contains a definite quantity of free acid, while subnitrate of bismuth is thrown down; that this dissociation proceeds still further when the temperature is raised, and that the subnitrate itself is dissociated, in presence of water, until it has attained the composition $2BiO.NO_3$. Until this has been obtained, the precipitate is a mixture of different subnitrates.

If to a nitric acid solution of subnitrate of bismuth, a solution of salicylate of sodium is added, there is formed nitrate of sodium, salicylic acid is precipitated, and there not being now enough nitric acid in solution to keep the rest of the nitrate in solution, there is a tendency of formation of subnitrate, which again liberates a fresh quantity of nitric acid. These disadvantages may be greatly diminished by using a concentrated solution of salicylate of sodium.

Yet, when the precipitate is washed, the phenomenon of dissociation reappears: salicylic acid being but little soluble, it is necessary to wash a long time, and in proportion to the quantity of wash-water, and according to its temperature, the product will be different.

These conditions, unfavorable to the preparation of a definite compound, together with the multiplicity of possible combinations between bismuth and salicylic acid, sufficiently explain the different results obtained by therapeutists in the use of this compound.

The preparation of salicylate of bismuth is a delicate operation: the washing of the precipitate, which is necessary to remove the nitrate of sodium and the undecomposed salicylate of sodium, raise the proportion of bismuth in the product, which contains some free salicylic acid, owing to the feeble solubility of the latter.

The best product thus far known in France, according to the author, is that made at the French Salicylic Acid Works; this contains comparatively little free salicylic acid. — *Rép. de Pharm.*, 1883, 498.

---

* By LOUIS W. SCHMIDT, Ph.C., Contributions from the Chem. Laboratory of the University of Michigan (Ed. by Prescott and Vaughan), I., 100.

† See page 81 of the U. S. Pharmacopœia.

‡ University of Michigan, School of Pharmacy, C. W. Teeter, 1880; NEW REM., IX., p. 58, reprinted.

§ Proceedings American Pharmaceutical Association, page 98.

On Testing for Arsenic, Particularly in Subnitrate of Bismuth.

[Concluded from page 33.]

FINALLY it remained to study the

Behavior of Nitrate of Bismuth towards Arsenious and Arsenic Acids.

Very little is known concerning the relation of oxide of bismuth to arsenic or arsenious acids. Salkowski* states that arsenate of bismuth—$(BiAsO_4)_2 \cdot H_2O$ is insoluble in nitric acid, and suitable for the determination of arsenic. Schneider† finds that arsenic present in bismuth is converted into arsenious acid by nitric acid with gentle heat; but that on introducing the metal into nitric acid heated to 70°–90° C., arsenic acid is produced which immediately combines with oxide of bismuth to an insoluble compound which is completely insoluble in a solution of nitrate of bismuth as free from an undue excess of acid as possible. Upon this fact is based one step in the usual process of preparation of subnitrate of bismuth, namely, the removal of any insoluble precipitate which may separate when bismuth is dissolved in nitric acid and the solution heated to 80°–90° C.

On the behavior of arsenious acid toward oxide of bismuth the authorities are silent. Prof. Reichardt found that when the acid was purposely added to pure subnitrate, the larger portion at least remained in solution, though occasionally the precipitated salt was also found contaminated with arsenic. Whether the latter was present as arsenic acid was not decided, though probable.

On decomposing 10 *gm.* of acid nitrate of bismuth in the usual manner with water, in one case when 10 *gm.* of solution of arsenite of potassium had been added, no trace of arsenic was found in the subnitrate. In another case, when an equal quantity of arsenate of ammonium had been added, the whole of the arsenic was found in the precipitate.

In some other experiments with arsenious acid, the precipitate contained arsenic, but it was impossible to ascertain the nature and composition of the compound which it formed with bismuth. An arsenate of bismuth, however, which was prepared several times, contained 33.2 and 33.4 per cent of arsenic, respectively, which corresponds to the anhydrous salt $BiAsO_4$, requiring 33.14 per cent.

This arsenate of bismuth is completely decomposed by heating with excess of soda solution for about an hour at 50°–60° C. Equally complete is this decomposition in the case of the arsenite of bismuth or a mixture of arsenious acid and oxide of bismuth.

The arsenious acid may be detected in the alkaline liquid by acidulating and addition of hydrosulphuric acid. Arsenic acid, by acidulating, then supersaturating with ammonia (which always produces a slight flocculent precipitate of arsenate of bismuth, or lead if this be present), then filtering and adding magnesia mixture. The separation of the ammonio-magnesian arsenate takes place in a few minutes. If hydro-sulphuric acid be conducted through the acidulated liquid, the sulphide of arsenic makes its appearance only after a long time (sometimes hours) and much less distinctly, owing to free sulphur which is also separated.

Prof. Reichardt found that, by using stronger reducing metals, *f. i.*, sodium, in place of zinc or iron, the same results were obtained; that is, the reduction of any arsenic acid to arsenious was equally slow and imperfect.

If hydrogen was evolved from acid solutions, such as arise from the action of hydrochloric or sulphuric acid upon zinc, the least trace of either arsenic or arsenious acid at once affected the silver paper. Neither the presence of nitric acid, nor that of ammonia (possibly produced from the former) interfere with the reaction, as was shown by the addition of more or less nitrate of potassium.

If nitrate of bismuth is directly added to an alkaline or to acid liquid evolving hydrogen, the bismuth is first reduced and separated as black, flocculent substance. After this is all reduced, the action on the arsenic begins.

Prof. Reichardt, therefore, recommends to modify the test for arsenic as follows:

"Subnitrate of bismuth, when heated with solution of soda in excess, should not evolve ammonial vapors. If the alkaline filtrate be then supersaturated with hydrochloric or sulphuric acid, and zinc be added—a small pellet of cotton being pushed a short distance down the test-tube—the escaping gas should not color paper wet with an acid solution of nitrate of silver (containing 1 of nitrate of silver, 2 of water, and 2 of nitric acid).

Prof. Reichardt's experiments showed that hydrosulphuric acid reduces nitric acid *only slowly*, and, therefore, does not hinder the arsenic reaction, so that the alkaline filtrate, from the reaction for ammonia, may be at once, and with perfect certainty, used for the arsenic test in acid solution. This experience would show that it is not necessary to drive off the nitric by sulphuric acid. It is, however, desirable to examine this point still more thoroughly.—After *Arch. d. Pharm.*, 221, 585.

* Journ. f. prakt. Chem., 109, 129.
† Ibid. (2), 20, 418. Arch. d. Pharm. (1880), 216, 121.

ALCOHOL LAMP WITH CONSTANT LEVEL.

NOT every laboratory is so situated that it can command the use of gas for lighting and heating purposes. Some of them (particularly mining-laboratories) are still compelled to have recourse to alcohol or some other burning-fluid. The usual alcohol lamps, however, have the disadvantage of burning too short a time and yielding a very variable temperature. These drawbacks are removed by the improvements introduced by Mr. C. Reinhardt.

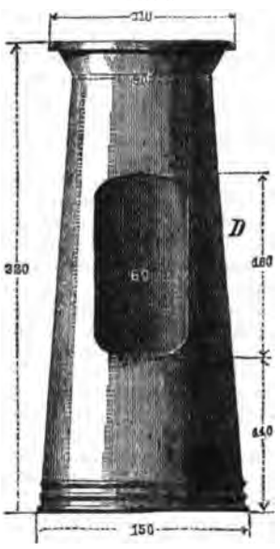
Fig. 1.

a (Fig. 1) is a two-necked glass globe of about five pints capacity, the upper neck being closed with a rubber stopper *b*, and the lower with a doubly-perforated rubber stopper *c*. The globe, which forms the reservoir of alcohol, rests upon the tinned iron cone (Fig. 2), which has an opening at the side, through which the faucet *f* may be regulated. Through the stopper *c* pass the air-tube *g* and the glass feeding-tube *e*, provided with the faucet *f*. *H* is an alcohol lamp constructed of strong sheet-brass, and having a double draft (a so-called Berzelius lamp). The flame may be regulated by means of the screw *i*; *k* is a brass faucet, *l* a small reservoir, with thrice-perforated stopper, through which pass the tubes *e*, *g*, and an additional air-tube *m*.

While the faucets *k* and *l* are closed, the stopper *b* is removed and the globe filled with alcohol by means of a faucet, so that none shall enter tube *g*. The stopper is then replaced. The level of the liquid in the small reservoir *l*—and thereby also in the lamp *H*—is determined by the higher or lower position of the air tube *g*. As soon as this is properly adjusted, the two faucets may be opened, when the alcohol will rise in the lower reservoir and in the lamp to the level of the lower orifice of *g*, and, as it is gradually consumed, more will descend from *a*.

This lamp has the great advantage of burning for a long time and maintaining an equable temperature. Owing to the cost of alcohol in this country, the lamp is not likely to be as serviceable as in Germany, where such fuel is not taxed.

Fig. 2.



Reinhardt's Constant-Level Alcohol Lamp.

It may be obtained from C. Reinhardt in Duisburg-Hochfeld.—*Zeitschr. f. Anal. Chem.*, 1884, 40.

Spider's Web as an Antiperiodic.

DR. OLIVER, having given spider's web in eighty-three malarial cases, concludes, first, that it can cure intermittent fever of quotidian or tertian type; second, the dose for an adult is thirty grains; third, it is less prompt than quinine, and therefore should not be employed in grave cases; fourth, it has a more pleasant taste than quinine; fifth, relapses are less frequent.—*Bull. Général de Thérapeutique.*

Venetian Red has been found by British analysts to be used in the manufacture of certain German sausages as a means for improving their color. The defendant in a suit for infringement of the Food and Drug Act stated that every 40 lb. of his sausages contained 32 lb. of lean legs of pork, 2 lb. of back-fat, 4 lb. of flour, 6 oz. of white pepper, 2 oz. of nutmeg, 2 oz. of saltpeter, 12 oz. of salt, 2 oz. of Venetian red, and a little Cayenne pepper.

A New Method of Ascertaining the Presence of Cotton-Seed Oil in Olive Oil.

PROF. GIUSEPPE SERRA CARPI publishes, in the *Annali di Chimica applicata* (Milan, Sept., 1883, p. 161), a novel method for testing olive oil, which appears to possess some merit, and will, at least, be found of practical value in connection with other tests.

The author observed that, when pure olive oil, or a mixture of this with other fatty oils in different proportions, was cooled by a freezing mixture, the resulting solid mass differed both in color and in density. The density is here meant to be the resistance of the congealed oil to the penetration of a small, spindle-shaped piece of iron terminating with a cone, the base of which has a diameter of 2 millimeters, and which is 1 centimeter high. Such a cone was found to require only a force of 20 to 30 grammes to penetrate and sink in frozen cotton-seed oil (of any grade or source), while, in a mixture containing cotton-seed oil and $\frac{1}{4}$, or $\frac{1}{2}$, or $\frac{3}{4}$ parts of olive oil, the required force of penetration amounted to 40, 55, and 80 grammes, respectively.

The experiments were all made with samples of oils cooled for three hours in a mixture of pounded ice and salt, having a temperature of —20° C. (—4° F.).

Composition of Mixture.	Resistance in grammes offered to the penetration of the iron cone described above.	Color after three hours' cooling at — 20° C.
Pure Cotton Seed Oil...	25. 35.	Brownish-yellow.
Olive, + $\frac{3}{4}$ Cotton S. O.	36. 38. 34. 36. 35. 34. 34. 34. 36.	Light brownish-yellow.
" + $\frac{1}{2}$ Cotton S. O.	51. 51. 56. 55. 52. 53. 52. 52. 55.	Light greenish-yellow.
" + $\frac{1}{4}$ Cotton S. O.	60. 68. 71. 60. 65. 65. 66.	Still lighter do.
" + $\frac{1}{8}$ Cotton S. O.	750. 800.	Greenish-white.
" + $\frac{1}{10}$ Cotton S. O.	950. 850. 900. 920.	Whitish.
" + $\frac{1}{20}$ Cotton S. O	1,000. 1,000. 1,050. 1,200. 950.	Still lighter do.
Pure Olive Oil	1,300. 1,300. 1,250. 1,270. 1,400.	White.

Wishing to ascertain the smallest quantity of cotton-seed oil which, when mixed with olive oil of a given type, would produce a sensible alteration in hardness, he made mixtures containing, respectively, $\frac{1}{4}$, $\frac{1}{10}$, and $\frac{1}{20}$ of cotton-seed oil, and he found that even as small a quantity as the last-named considerably diminished the d ensity, this diminution being equal to resistance of from 200 to 300 grammes less than with perfectly pure olive oil. And in the case of olive oils extracted with disulphide of carbon, and mixed with $\frac{1}{20}$ of cotton-seed oil, the resistance is still smaller, being 400 to 500 grammes less than with the pure oil.

Whether the same degree of resistance was offered by every kind of olive oil, no matter of what grade or country, has not yet been finally determined by the author, owing to the great scope of the investigation. Yet he feels, already at this time, justified in stating that this resistance or density is a peculiar characteristic of pure olive oil, frozen, as stated, for three hours. He did, indeed, find that low-grade and colored oils varied in this particular, but in no case did a genuine oil possess a less resistance than 1000 grammes, and the highest density of the best oil was 1,800 grammes.

This same method of testing will also betray other oils besides cotton-seed oil; for instance, rape-seed, sesame, and almond oil. Olive oil, having, by itself, a resistance of 1,400 grammes, when mixed with $\frac{1}{4}$ part of oil of sesame, will have a resistance of only 800 grammes. With $\frac{1}{4}$ of rape-seed oil it will have a "density" of only 7 grammes, and, with $\frac{1}{4}$ of almond oil, one of 700 grammes.

We append the author's table giving the hardness or resistance of a mixture of finest Lucca salad oil with first-quality cotton-seed oil.

[Note by ED. A. D.—Much reliance, of course, cannot be placed on the color, since this must be considerably affected by the color of the individual oils themselves before being mixed; nor does the author himself insist upon this point. The method will, naturally, only indicate the presence of some foreign oil or other which depresses the resistance of pure olive oil; the identification of the added oil, except in special cases, or in mixtures made on purpose, will have to be accomplished by other means.

It is to be regretted that the author did not clearly indicate the exact details of operating the method. In estimating the pressure or resistance, by grammes, how is this weight to be determined? In the absence of any directions of the author, and subject to his subsequent correction of any misconception on our part, we would carry out the process thus. We would provide a piece of thin iron-rod, having, at one end, a cone of the dimensions given by the author, and, at the other end, a small scale-pan. A small frame of iron-wire is to be so arranged that the iron-rod bearing the scale-pan is kept by it, without friction, in a perpendicular position. The oil having been frozen, the iron-rod is placed, through the frame or holder, so that its cone-shaped point rests on the oil, and then a sufficient number of weights are gradually placed upon the scale-pan, until the base of the cone just disappears below the level of the oil, sufficient time being given before the addition of more weights. The iron-rod, with scale-pan, should also be weighed and included in the total.

As it may be some time before the author concludes to publish a continuation of his paper, we venture to suggest the above manipulation, in order to give our readers a chance of trying the method. We claim no originality for the suggestion, but merely wish to supplement, temporarily, an omission in the original paper.]

A Cause of Spontaneous Combustion.

MR. BUCHHEISTER, of Hamburg, sends the following communication to the *Drogisten-Zeitung:*

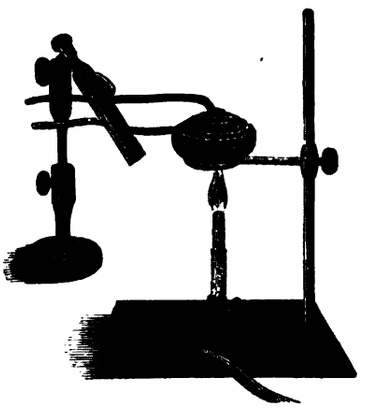
"It is well known that saw-dust is the best thing for cleaning greasy vessels, soaking up spilled oil from floors, and similar purposes. The following case will show, however, that special caution must be observed when using it.

"In my establishment there is always a small box containing saw-dust standing in the place where prepared paints are weighed, for the purpose of cleaning up any spillings. Some days ago, late in the evening, a potful of paint fell on the floor, and the last portions of this were, as usual, taken up by means of the saw-dust; but the latter, instead of being thrown at once into the fire, were, by oversight, thrown back into the box. As I was aware of the fact that such oily mixtures were liable to get hot and ignite, I had the box put outside of the house. How useful this precaution was appeared next morning, when a small pile of ashes was found to be the only remnant of box and saw-dust. I thereupon determined to ascertain the cause of this spontaneous combustion, and found that saw-dust soaked with linseed oil did not become sensibly heated; nor did this happen when oil of turpentine was mixed with the linseed oil. Heat was, however, at once developed, as soon as brown 'dryer' was added to the oil, and most strongly if pure 'dryer' was added. Varnish, prepared with boiled oil, likewise produced a strong heat.

"It is apparently the manganese compound of the linoleic acid contained in the dryer which is the cause of the heating.

"At all events, it is necessary at once to remove or destroy any saw-dust impregnated with varnish or dryer."

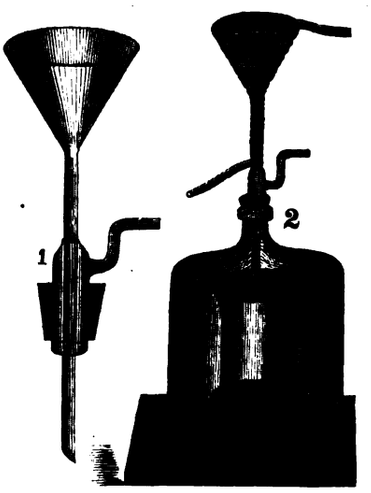
[The same may be said of cotton rags or waste when used for such purpose, and their liability to spontaneous combustion is greatly increased by sprinkling them with water.—ED. AM. DRUGGIST.]



AN IMPROVED SUBLIMATION-APPARATUS.

SUBLIMATION can be greatly hastened and made more perfect if the vessel in which the volatile vapors are to be condensed is properly cooled. The author has succeeded in subliming substances melting at quite low temperature by applying to the upper vessel (a large watch-glass in the example illustrated), a coil of fine lead-pipe, and passing a rapid current of cold water through it.

The same principle can, of course, be applied on a large scale in the sublimation of such substances as benzoic acid, sulphur, etc., etc.).—R. RICHTER, in *Journ. f. Prakt. Chem.*, 1883, 310.



STEAM FUNNEL FOR RAPID FILTRATION.

FOR rapid filtering the same author uses a special funnel, the neck of which is inclosed by a somewhat shorter but wider glass tube, from the upper neck of which arises the suction tube to be connected with the filter-pump. This does away with the necessity of using a doubly-perforated cork, a single perforation being sufficient. In place of filtering the liquid into an ordinary bottle, he places a beaker or other suitable vessel upon a piece of plate-glass and covers this with a one-necked bottle, the bottom of

which has been cut off and the ground edges of which are made to rest air-tight upon the glass plate by means of some fatty substance [for which we can recommend petroleum ointment.—Ed. A. D.]. The beaker may be adjusted by means of proper supports, at such a height that no spattering of the liquid can take place.

The funnel may be surrounded by a closely-fitting coil of small lead-pipe, through which steam may be conducted. This will facilitate the filtration of solutions which at ordinary temperatures would deposit some of the dissolved material. Figures 1 and 2 illustrate the construction of the glass funnel, also the bell-glass shaped bottle, and the coil of lead-pipe. There is a special kind of very thin tinned lead-pipe made for pneumatic bells. This is the kind used by the author.—R. Richter, *Journ f. prakt. Chemie*, 1883, 309.

How to Burn Numbers or Letters in Porcelain.

The following process is suggested by C. Reinhardt for the purpose of permanently marking crucibles with numbers or letters for the purpose of preventing mistakes in analysis.

The same process, however, will serve for indelibly marking any kind of porcelain, provided only that sufficient care be taken during the heating to avoid cracking the vessel.

The marking is done with the usual encaustic colors used in porcelain-painting. The colors, consisting of silica, red lead, boracic acid, and some coloring metallic oxide (oxide of chromium, cobalt, etc.), may be had from any porcelain factory.

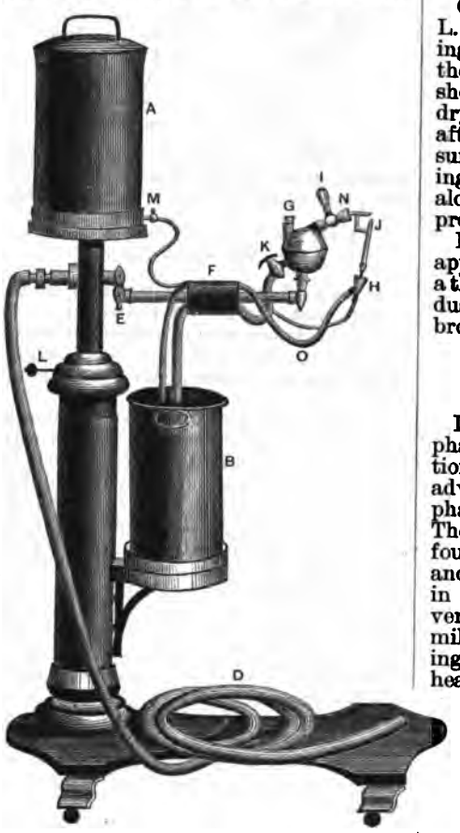
The finely pulverized coloring substance is levigated to a very fine, thickish paste with oil of anise or of lavender, in an agate mortar. By means of a thin, rather short hair-pencil the numbers or letters are painted on, and the crucibles or vessels placed on an iron plate and gradually heated. When the color is dry, the articles are transferred to a muffle, where the encaustic process is finished by a high heat. It is necessary to avoid putting on the color too thick, since it might peel off.—After *Zeitsch. f. anal. Chem.*, 1884, 42.

Soluble Essence of Ginger.

As far back as 1859 Mr. Barnard Proctor gave a formula for transparent ginger-syrups, in which the several bodies which cause opalescence were precipitated by means of hydrate of alumina. Two grains of common alum were dissolved in 6 oz. of distilled water and 6 drachms Tr. zingib. fort. mixed therewith, finally 10 minims of liq. potassæ were added, the whole allowed to stand for some time, then filtered and 12 oz. of sugar dissolved in the filtrate. This gives excellent results, and may be conveniently used where there is no outlet for soluble essence and little for clear syrup, the very small quantity of sulphate of potash not being perceptible. The same method has been applied to the essence alone with excellent results, the strong tincture—say one pint—is mixed with an equal volume of water containing 40 grains of alum; the mixture should be agitated thoroughly for twenty minutes, then 6½ drachms of liq. potassæ B. P. added, and again agitated and allowed to settle for two hours, when it may be filtered. This is a very rapid method of making the soluble essence, but it is somewhat deficient in aroma, as all such essences are. The researches of Dr. Tresh on the constitution of ginger show that an essence can be prepared containing a very large proportion of the aromatic and pungent bodies. Dr. Tresh first proposed carbonate of magnesia (Leary), but the essence so made becomes muddy after standing for a few weeks; the light carbonate, in the proportion of two ounces to the pint, has not this objection. We find Dr. Tresh's second method is exceedingly workable, and we give it in his own words. Take of strong tincture (lime) of finest Jamaica ginger, one pint, adding small proportions at a time of finely powdered slaked lime, until the tincture ceases to lose color, throw the whole upon a filter, and pass through the residue proof spirit until the product measures two pints. Now add, drop by drop, dilute sulphuric acid, until the rich yellow color suddenly disappears, let stand for twenty-four hours, filter, dilute with water to four pints, shake with a little powdered pumice or silica (by no means lime or magnesia), and filter at 0° C. if possible. As the lime is added the color deepens, but becomes lighter with greater additions. The product is very pale, but may be darkened by adding a drop or two of potash solution. Working on somewhat similar principles, we have mixed the tincture with its own bulk of water before adding the lime, then mashed the lime with a little proof spirit, mixed the two liquids, shaking finally with fine sand, and laid aside until required, then filtered. The aroma may be improved by the addition of a few drops (to the pint) of essential oil of ginger. For ginger ale take

Soluble essence of ginger.	ʒ xix.
Essence of vanilla.....	ʒ i.
" " lemon.....	ʒ iij.
Tincture of capsicum	ʒ iv.
Burnt sugar.....	q. s.

—*Chem. and Drugg. Diary.*



Antiseptic Spray Apparatus.

IMPROVED SPRAY APPARATUS.

In a graduating thesis presented by B. Leroy Spiller to the Massachusetts College of Pharmacy, is described an improved apparatus for producing an antiseptic spray used in the Boston City Hospital, as follows: The illustration shows the apparatus complete with a coil of flexible hose for attachment to a steam radiator. The can A, holding the solution to be atomized, being of capacious size and the apparatus taking direct steam, it can be run without any attention whatever for any length of time; in fact it has been used without interruption in cases of diphtheria (when tracheotomy has been performed) day and night for a week or more.

To use the atomizer, connect the tube D with a steam-pipe, the steam passes through E (a common gas-bracket) to G, thence to spray-tube J. The handle I is used to direct the spray up or down, as desired; M is a cock controling the flow of liquid from A to the spray-tube J. The funnel H carries off the drip through the tube O into B. K is a pet-cock for drawing the condensed water from G. F, a wooden handle, serves to turn the bracket to right or left, at the point E, and also keeps the tubes O, P. and Q in position. L is a screw which is used to fix the stand at any height. The screw-cap N, used for connecting the spray-tube, is perforated around the edge with small holes; the object being allowed sufficient hot steam to surround the spray to prevent its becoming cool.

Method of Preserving Flowers, Leaves, and Other Parts of Plants.

German patent No. 23,792, issued to J. L. Wensel in Berlin, covers the following process. The respective parts of the plant are coated with a solution of shellac or resin, until they are perfectly dry. The moisture completely escapes after some time, through the fine fissures of the coating. Finally, the coating is removed by the cautions use of alcohol, whereupon the organs will present their orginal sharp outline.

If it is desired to give them a better appearance, they may be coated with a thin layer of an adhesive varnish and dusted with a suitably colored metallic bronze powder.

Phosphate of Codeia.

Dr. Fronmuller employs the phosphate of codeia for hypodermic injection. He says that it possesses the advantage over the muriate and sulphate of being much more soluble. The substance crystallizes in slender four-sided columns, is white in color, and of a bitterish taste, and is soluble in four parts of water. Its action is very like that of morphia; but it is milder, and the symptoms of poisoning (such as great weakness, intense headache, bilious vomiting, etc.) are much less often encountered. It seldom causes local irritation when subcutaneously injected. The dose should be at least double that of morphine. The phosphate of codeia is especially recommended in the case of women and children.

Belladonna Poisoning.

Dr. B. F. Nicholls reports the case of a lady who drank a pint of coffee in which there had been surreptitiously placed some belladonna leaves, and whom he saw two hours and a half afterwards, when there were present the following symptoms: universal tingling, burning and itching, muscular twitching, numbness, and constriction of the throat, great thirst but inability to swallow, continuous retching, pupils widely dilated, considerable eruption, with symptoms of profound narcosis. He immediately gave ¼ gr. of morphia hypodermically, and followed it up with ¼ gr. in fifteen minutes. The patient steadily improved, being kept under the influence of morphia for twelve hours, with sufficient brandy to counteract the subsequent prostration. —*Phila. Med. Times.*

Oxalic Acid in Pie-plant.—According to B. W. Damon, Ph.C. (who reports the resuts of his examination in the *Contrib. from the Chem. Lab. of the Univ. of Mich.*), the fresh stalks of pie-plant contain 0.11 per cent of free oxalic acid and 0.08 per cent in combination with lime.

On the Silver Test for Arsenic and some new Silver Compounds.*

SINCE the appearance of the last German Pharmacopœia, a number of criticisms have been made on the silver-test for arsenic (for instance, in bismuth salts) prescribed in this work. Some writers have shown that, under certain conditions, no stain is produced on paper moistened with solution of nitrate of silver, even though the substance tested did contain arsenic. Others have stated that stains are produced, in certain cases, even when arsenic is absent. Others again have indicated methods and conditions the observance of which insures the reliability of the test.

The doubt thus thrown on the silver test adopted by the German Pharmacopœia—where the arsenetted hydrogen is developed in an *acid* solution—might perhaps be supposed to be applicable also to the silver-test adopted by the U. S. Pharmacopœia; yet the conditions in this case are quite different, inasmuch as the gas is developed in an *alkaline* solution. At all events, it would not be safe to judge both methods by one and the same standard; and, until the test of the U. S. Ph. has been shown to be liable to fallacy, it should be allowed to pass as satisfactory, so much the more as it has been very carefully examined and very frequently applied both before the publication of the U. S. Ph. and afterwards, without exciting any suspicion of unreliability.

Prof. Th. Poleck and Mr. K. Thümmel have recently published an elaborate paper containing the results of their researches on the action of hydrogen and gaseous hydrogen compounds on nitrate of silver, which throws light on the discrepancies observed by other experimenters. We shall only give the salient points, owing to the length of the paper.

If diluted hydrochloric or sulphuric acid be poured upon zinc, in a test-tube, in presence of a substance containing arsenic, a pellet of cotton being pushed a short distance down the test-tube, and the latter being covered with a piece of paper moistened with strong (1 : 1) solution of nitrate of silver, the following changes will be noticed. The moistened spot will be colored *lemon-yellow*, first underneath, then above, and around the edge of the spot a *brownish black* margin will appear which gradually spreads toward the centre and finally blackens the whole spot. This takes place much sooner on the under surface. If large quantities of arsenic are present, and the gas is given off energetically, the yellow color is only transient, and the spot rapidly becomes black. If the spot is moistened with water, while it is still yellow and only has a black edge, *it turns black at once all over*, and at the same time reddens blue litmus-paper, while the concentrated silver solution itself originally had a neutral reaction.

It was soon found that sulphuretted† and phosphoretted hydrogen produce the same kinds of spots, while antimonetted hydrogen behaves somewhat differently.

1. Action of Sulphuretted Hydrogen upon Concentrated Solution of Nitrate of Silver.

The concentrated solution here and subsequently meant contains one part of the salt and 0.7 to 1 part (not more) of water.

If the gas be made to act upon a piece of paper moistened with a drop of the solution, the stain becomes yellow to greenish-yellow, surrounded with a black edge, and very gradually changes to black. When moistened with water, it *does not at once become black*, but only after some time.

If, instead of the *concentrated* solution of silver, one of less strength is used (containing one of salt and two or more of water), *no yellowish-green* color is obtained, but the spot becomes *brownish-black* or *black at once*.

The yellowish-green coloration was found to be due to the formation of a peculiar compound, obtained in quantity by conducting the gas through the concentrated solution. The yellowish-green precipitate decomposes when washed with water or alcohol, but may be washed almost completely by dilute nitric acid (one part nitric acid sp. gr. 1.180 and two parts water). When dry, it is an amorphous dark-green powder with a yellowish tint, sensitive to light, and decomposed by water into nitrate and sulphide of silver. The compound is formed thus:

$$3AgNO_3 + H_2S = AgS.AgNO_3 + 2HNO_3$$

(silver nitrate + hydrosulphuric acid = new compound + nitric acid)

$$4(Ag_2S.AgNO_3) = 4NO_2 + 4Ag + 3Ag_2S + Ag_2SO_4$$

(new compound = nitric oxide + silver + silver sulphide + silver sulphate)

A similar compound was also obtained, in which sulphate of silver took the place of the nitrate: $Ag_2S.Ag_2SO_4$.

2. Action of Arsenetted Hydrogen upon Nitrate of Silver.

It is well known and firmly established that arsenetted hydrogen acts upon *dilute* solution of nitrate of silver so as to produce metallic silver, while arsenious and nitric acids go into solution.

If, however, the solution of silver is *concentrated*, the reaction is entirely different. As stated above, the yellow stain (with black edge), when moistened with water, *at once turns black*, which distinguishes the spot sharply from that produced by sulphuretted hydrogen. If the gas is cautiously passed through the concentrated solution, the latter becomes intensely yellow, without depositing a precipitate. This yellow color lasts for several days (even when nitric acid is added); then the liquid becomes colorless, with separation of metallic silver, while arsenious and arsenic acids are in solution. If the yellow solution is warmed, it at once become colorless and deposits metallic silver.

Numerous attempts were made to isolate this yellow compound, but without success. To clear up its nature, recourse was, therefore, had to an estimation of the separated silver and the proportion of the latter to the arsenious and nitric acids. This yielded results showing that the compound was constituted analogous to those previously described, namely, that it was a combination of arsenite and nitrate of silver. Its formation may be thus explained:

$$H_3As + 6AgNO_3 = (Ag_3As.3AgNO_3) + 3HNO_3$$

(arsenetted hydrogen + silver nitrate = new compound + nitric acid.)

When decomposed by water it splits up thus:

$$(Ag_3As.3AgNO_3) + 3H_2O = 6Ag + H_3AsO_3 + 3HNO_3$$

(new compound + water = silver + arsenious acid + nitric acid)

3. Action of Phosphoretted Hydrogen upon Concentrated Silver Solution.

Phosphoretted hydrogen behaves exactly like arsenetted hydrogen.

A similar compound was obtained, which was likewise determined indirectly, and has the composition: $Ag_3P.3AgNO_3$, the reactions occurring no doubt in the same manner as in the preceding case, excepting that its decomposition by water is not as regular as that of the former compounds.

4. Action of Antimonetted Hydrogen upon Concentrated Silver Solution.

In this case a similar compound was obtained as with arsenetted and phosphoretted hydrogen: $Ag_3Sb.3AgNO_3$.

If the gas comes in contact with paper moistened with concentrated silver solution, the spot becomes dark brownish-red to black at the edge, while the central portion of the stain is either not colored at all or merely rendered gray. With ammonia it turns black. If the nitrate of silver solution is more dilute, one of salt and 2 of water, the stain becomes brownish-red; if still more dilute (one to three or more of water), the stain turns black.

5. Action of Pure Hydrogen upon Concentrated Silver Solution.

If pure hydrogen comes in contact with paper moistened with the solution, the spot assumes, after a while, a faint brownish tint at the edges, while the centre remains colorless. If it is then moistened with water it remains uncolored, but reddens litmus paper. When the gas was passed through the solution, a portion of the silver was precipitated in a metallic state.

It appears, therefore, from the researches of the authors, that the action of *arsenetted hydrogen* upon a *concentrated* solution of silver is quite characteristic and delicate, and capable of detecting the most minute quantities of arsenic. The characteristic, light-orange to lemon-yellow stains, with brownish-black edge, when moistened with water, *at once* become black, while the greenish-yellow stains produced by sulphuretted hydrogen remain *at first* unaltered, when wetted with water, and those produced by antimonetted hydrogen have a brown edge, with grayish-white centre.

Only the stains produced by phosphoretted hydrogen cannot be distinguished, by their behavior, from the arsenic stains. But, since all compounds of phosphorus liable to give out phosphoretted hydrogen (phosphides, hypophosphites, and phosphorous acid) may easily be oxidized to phosphoric acid by treatment with chlorine or bromine, and since phosphoric acid is *not* reduced by nascent hydrogen, while any arsenic acid at the same time produced *is* reduced—it will be easy to avoid mistakes from this source. Sulphuretted hydrogen or sulphurous acid, if present, can easily be oxidized to sulphuric acid by a few drops of iodine solution. [The oxidation of all of the above is accomplished in this way, or else by treatment with bromine water.]

Concerning the sensitiveness of the test, the authors obtained a plainly-visible yellow stain with as small a quantity as 0.005 milligrammes ($\frac{1}{11100}$ grain) of arsenic, which was still colored brown (though not black) by water.

* Abstract of a Paper by Th. Poleck and K. Thümmel in Ber. d. Deutsch. Chem. Ges., 1883, p. 2,435.

† In the U. S. Ph. test, this gas, as well as the antimonetted hydrogen are excluded, since they are not given off from the alkaline solution.

The Relative Merits of Chloride of Calcium and of Sulphuric Acid as Drying Agents.

DR. E. FLEISCHER has made experiments by means of a hygrometer, for the purpose of ascertaining whether chloride of calcium or sulphuric acid are preferable as agents for abstracting moisture in the desiccator.

He found that the withdrawal of moisture, when chloride of calcium was employed, was not only exceedingly slow, but that it was always quite imperfect. In the case of strong sulphuric acid (66° B.), however, he found that the absorption of moisture was perfect, and that it acts about fourteen times more rapidly than chloride of calcium.—*Zeitsch. f. anal. Chem.*, 1884, 34.

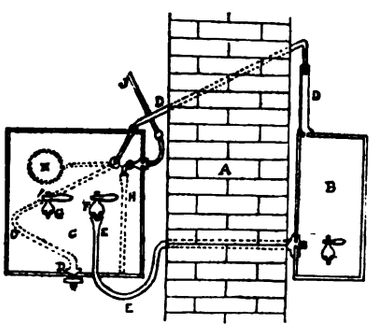
Bombay Bazar Scammony.

THE Sakmuniya, or Bazar Scammony sold in Bombay is all fictitious. It is said to be made in Surat, and does not in the least resemble any kind of genuine scammony. It occurs in irregular fragments of a bright green color, somewhat translucent at the edges, and having a resinous fracture; its odor and taste are suggestive of common resin. Rectified spirit dissolves the resin, and leaves a residue of green coloring matter and gum; the former is evidently of vegetable origin. It is difficult to ascertain what is the purgative principle of this mixture—possibly some resin derived from one of the Convolvulaceæ. Sometimes a black sakmuniya is met with; this is also spurious, and is resinous in taste and smell, but has a more earthy appearance than the green variety. Rectified spirit dissolves out a quantity of resin and leaves a black residue which, under the microscope, is seen to be made up of tufts of vegetable hairs, numerous small carbonaceous particles, and small irregular crystalline particles. Treated with dilute hydrochloric acid, it effervesces feebly after a short time; with strong acid it effervesces strongly at once, and the vegetable matter is destroyed and forms a green solution. In Persia genuine scammony is obtainable, but I have not been able to ascertain whether it is produced in that country or imported. The Arabs and Persians call it Mahmoodah, Meer Muhammad. Husian, in the Makhzan, gives a good description of scammony and the plant which produces it. He tells us that artificial scammony is made from the juice of Calotropis gigantea, mixed with the flower of a kind of pulse called in Persian "Karsanah." His account of the uses of the drug does not differ materially from that given in European works, with the exception that scammony when baked is said to lose its aperient properties and to act as a powerful diuretic. The baking process consists in inclosing the powdered drug in a bag and then placing the bag inside an apple or quince which has been hollowed out for the purpose; the apple is then inclosed in dough like a dumpling and baked in an oven.—W. DYMOCK, *Veget. Mat. Med. of West India*, p. 474.

DISTILLED WATER.

AT the Pharmaceutical Conference held at Edinburgh in 1871, Mr. C. A. Staples explained a method of obtaining distilled water from the kitchen boiler. The boiler is a small cast-iron one, such as is usually supplied with an English kitchen range for a small family. It is self-filling by a small cistern and ball-cock in the usual manner. This cistern having cold water constantly flowing through it is made to serve as a condenser. The drawing shows the arrangement. The lid of the boiler (B) is closed by a paste of castor oil and whiting, which does not harden. The top plate has a hole at the back corner near the wall (A) into which a piece of brass tube (D), about 9 or 10 inches long, is fixed. Mr. Staples used a piece of gas pillar, such as is screwed into a counter. To the top, a piece of half-inch tube of pure tin* is fitted, bent to an angle of 60° or 65°, which, passing through the brick-work at a fall of about 25° or 30°, projects a few inches beyond the wall, where the end, slightly contracted by a file, and curving downwards, is received into the enlarged mouth of a similar piece of tube, into which it fits with sufficient firmness without cement. It then enters the condenser near the top, is curved half round the inside out of the way of the ball, and passes out at the centre of the bottom, being secured to the condenser by screw-joints; that at the top may be an ordinary brass one, but the lower one should be cast in pure tin, or, if a brass one is used, it must be carefully tinned inside and out; for, although not in immediate contact with the distilled water, a slight moisture might collect on it, and injure the water.

The lower end of the pipe should be tied over with muslin, or closed and pierced with fine holes, since insects, attracted by the warmth and moisture, might enter it in the night. In fact, the greatest care must be taken to insure the purity of the metal, and that the inside of the pipe, from the point of condensation, is protected from any metallic or other contamination. The condenser should be much larger than usual, and have a light fitting inside, or steam will collect on it, and flow down the outside of the condenser. It should stand on a stool, with a hole for



the pipe to pass through, under which the jar to receive the distilled water could be placed out of the way. The ball-cock should have a piece of pipe soldered to the nozzle, that the cold water may reach the bottom of the condenser. The pipe for feeding the boiler (E) should come from about the centre of the condenser, and curve downwards, so that a portion may be below the bottom of the boiler; for without this precaution, the heated water would circulate to and from the condenser and the water would soon become nearly as hot as that in the boiler itself. This simple precaution effectually prevents it, as the heated water will not pass through the cold part of the pipe below it without pressure. It should also be furnished with a stop-cock; all the joints should be secured by a few discs of stout brown paper over the flange, which, when drawn tight by the nut, effectually prevents leakage, and are easily removed if required for alteration, repair, or cleansing. But if they are fixed with lead cement, they become so firm that they cannot be removed without injury. The condenser should have a waste-pipe, unless the main cistern has a stop-cock to shut off the whole supply at night, or the condenser may overflow, since the ball-cock must necessarily work easily, and a slight leakage might be expected. The hole in the brick-work should have a piece of iron pipe cemented into it to form a regular slope for the steam pipe, otherwise it might drop into the hollow space, and water collect in it.

Mr. Staples found the supply of distilled water obtained by this contrivance abundant, and pure enough for any purpose. It is perfectly self-acting; the boiler fills itself, and the water distils itself. It does not cause any inconvenience, interfere with any domestic or culinary operation, or limit the use of the boiler; on the contrary, it is greatly increased, as an abundant supply of heated water may be drawn from the condenser, care being taken to close the stop-cock, and keep it closed for ten or fifteen minutes, or until the heated water is replaced by cold. It is perfectly safe, as the steam escapes freely through the tube, and the lid of the boiler, although steam-tight, may be raised with the thumb and finger. Little attention is required beyond placing a vessel to receive the distilled water, and seeing that it does not overflow, the supply being so copious that sometimes while cooking a dinner for a moderate family several gallons will come over.—*Chem. and Drug. Diary.*

* For a very large boiler, a three-quarter or even one inch pipe might be required, and the boilers should be made of wrought iron.

Effect of Lime Juice on the Menses.

A CONTRIBUTOR to the *Lancet* states it as a fact that the sucking of the juice of one or two lemons by women suffering from an inordinate flow of the menses has the effect of checking the same. This statement, in connection with the reports of the effect of lime juice upon the amative instincts of the male, would seem to tend to establish a belief in its anaphrodisiac properties.

Hydriodic Acid in Asthma.

DR. J. OLIVER (*Drug.*) says that the syrup of hydriodic acid given after the following fashion yields good results: Begin with small doses, twenty or thirty drops well diluted with water, and taken about half an hour to an hour before meals; if taken after meals it may disturb the stomach, set up fermentation, and cause colic, acid stomach, and pain in the head; increase the dose gradually. The dose should not exceed a tablespoonful.

Sweating Feet.

M. VIEUSSE, principal medical officer of the Medical Hospital at Oran, states that excessive sweating of the feet, under whatever form it appears, can be quickly cured by carefully conducted friction with the subnitrate of bismuth, and even in the few cases where this suppresses the abundant sweating only temporarily, it still removes the severe pain and the fetidity which often accompany the secretion. Dr. Vieusse has never found any ill consequence to follow the suppression of the sweating.

To Abort a Stye.

DR. LOUIS FITZPATRICK, who has recently returned from Egypt, where all kinds of eye affections are extremely common, writes to the *Lancet* that he has never seen a single instance in which the stye continued to develop after the following treatment had been resorted to: The lids should be held apart by the thumb and index finger of the left hand or a lid-retractor, if such be at hand, while the tincture of iodine is painted over the inflamed papilla with a fine camel's hair pencil. The lids should not be allowed to come in contact until the part touched is dry. A few such applications in the twenty-four hours are sufficient.

Capsicum in Piles.

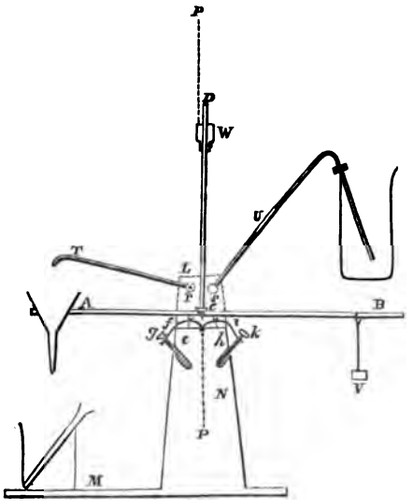
THIS Vidal regards as the best remedy in piles. He prescribes three or four three-grain pills daily, half at breakfast time and half at supper time. Under its influence, congestion and all the painful symptoms which accompany it disappear rapidly.

Tannate of Sodium.

TANNATE of sodium has been lately recommended instead of tannin to lessen the excretion of albumen in albuminuria; but the statements concerning its value are somewhat conflicting. Ribbet found that it lessened the excretion of albumen in animals. Dr. Brien, on the other hand, found, in four carefully observed cases of patients suffering from chronic albuminuria, that it was of no use whatever; some patients can take it well; others vomit after every dose.—*Practit.*, Oct., p. 204, and *Pharm. Journal.*

FILTRATION BALANCE.

ALL the arrangements for the automatic washing of precipitates, of which I have seen previous mention, provide for keeping the water at nearly a constant level in the funnel. By this method of washing a precipitate, usually much more water is necessary than if each portion is allowed to drain off before a new addition of it. At the Cincinnati meeting of the American Association for the Advancement of Science, in 1881, Prof. H. Carmichael, of Bowdoin College, Maine, exhibited a filtration and evaporation balance, which I must describe before giving my modification of it.



The figure without the upright *CD* illustrates this balance, which is most convenient for delivering a large amount of liquid on a small filter, or into a small evaporating dish.

A beam, *AB*, balanced on the knife edge (or pivot) *C*, supports in a ring, *A*, the funnel which is equipoised by the weight *V*; *s* and *r* are corks passed through the upright *NL*, and hold in any position the tubes *U* and *T* which are bent to pass through them. Close to *C*, and under the beam, passes a rubber tube, *e*, which connects the tubes *U* and *T*, and conducts the wash water or other liquids. By use of thumb-screws *g* and *k*, the little brass arms *f* and *i* may be raised to adjust the pressure upon the rubber tubes *e* and *h*.

To the above-described apparatus I add a vertical rod, *CD*, fastened to the arm *AB*, and at right angles to it; on this is supported a weight, *W*, whose height is fixed by the binding screw also sliding on this rod. I employ for two-inch funnels a cylindrical lead weight, *V*, weighing about 300 grms; for three-inch funnels, about 500 grms. The apparatus is used as follows:

Having brought all the precipitate on the paper in a funnel, allow it to drain, put the funnel in place, and fix the weight *W* near *D*; then slide the weight *V* on *B* until it will just be able to raise *A* from its lowest position, when, of course, *W* will move to the right of the vertical *PP*. Then water will pass through *e* and drop into the funnel until it is nearly full, when (if *W* and *k* are adjusted properly) *A* will fall, bringing *W* to the left of the vertical, and in this position no water will pass through *e*. When the funnel has again drained, the arm *A* rises, and (the water again flows into the funnel) this alternating motion continues so long as water is supplied. I have made *AB* of iron, 10 × 4 *mm*. The upright *NL* is 35 *mm*. thick; other dimensions may be taken from the figure. It is essential that the tube *e* admits of being closed by very gentle pressure (less than 100 grammes) of the knife edge cut on the under side of the beam. I use for this pure rubber tubing, 2.5 *mm*. exterior diameter.

Removing *W*, the apparatus may be used as was intended by Prof. Carmichael. When conducting an evaporation, the dish rests in *A*, and the gas passes through *h* to the burner, so that, when the liquid is exhausted, and before that in the dish has come to dryness, the arm *A* will rise, compress *M* and so extinguish the flame.—F. P. DUNNINGTON, in *Amer. Chem. Journal.*

Lime-Juice and Glycerin.

PREPARATIONS of this class are generally of three kinds, viz., (*A*) simple mixtures of lime water and an oil, (*B*) inseparable emulsions containing a more powerful alkali, and (*C*) true mixtures of lime-juice, glycerin, and an oil (such as Rimmel's). All have the same end in view; that is, to restore and beautify the hair.

Class *A* cannot be made inseparable, but, in the proportion of three parts of almond or sesame oil to five parts of fresh lime water, the latter being added very gradually and with constant shaking, a very good preparation is obtained, and such as may be used for common purposes. The inseparable kind is quite as good as a hair-dressing as any other, and has the further recommendation of pleasing the public. To make this, put one pint (20 oz.) of almond oil in a Winchester quart bottle and add 4 oz. of water containg 80 grains of borax. Shake well and add 3 drachms liquor potassæ and q. s. lemon and bergamot to perfume, and shake occasionally during 3 hours.

Class *C*. For this variety Mr. F. Barret (in *Phar. Jour. and Trans.*), gives the following formula for "elegant" preparation:

White wax	℥ ½
Almond oil	℥ 8

Dissolve the wax in the oil by heat and add gradually:

Glycerin	℥ 1
Lime juice	℥ 1
Rectified spirit	℥ ½
Water	℥ 2
Ess. lemon	℥ 2
Ess. oil of almonds	gtt. 5

To these formulæ we may add that of a preparation of a different nature, but strictly a lime-juice and glycerin. It has the disadvantage of being a little thin, and separates into two layers on standing, readily combining, however, on agitation. It forms an admirable hair-dressing for hard and soft hair:

Tincture of senega	½ drachm
Almond oil	1 oz.

Shake well, and add the following mixture gradually:

Glycerin	2 drachms
Lime-juice	1 oz.
Rose water	2 oz.

Perfume with

Essence of lemon	10 drops
Essence of bergamot	5 "

—*Chem. and Drug. Diary.*

Crotalus.

THIS is a remedy used by homœopathic physicians in hemorrhagic fevers of zymotic diseases, and prepared, according to Dr. Hayward (*Lancet*) by pressing the poison from the poison sacs of living rattle-snakes while the serpents are rendered insensible by chloroform. The finger and thumb are used to exert the pressure, and the poison is received in a small vial, and to preserve it from decomposition it is mixed with nine parts of pure glycerin. Subsequent dilutions are made with glycerin, 1 part, to 3 parts of alcohol. The first centesimal dilution is turbid, and requires to be shaken. 3 to 5 drops of this, used hypodermically, constitute a dose. Dr. Hayward administered the third dilution internally in doses of 3 drops in a spoonful of water.

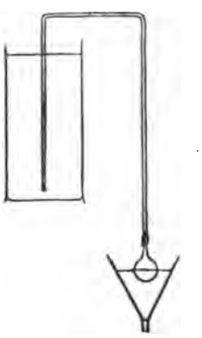
[Weir Mitchell has shown that the undiluted poison can be taken into a healthy stomach without apparent effect, and that to induce toxic effects the poison must be introduced into the capillaries or lymphatics. The value of the remedy when used internally is therefore very doubtful. — ED. AM. DRUG.]

Bromide of Arsenic in Diabetes.

A WRITER in the *Boston Medical and Surgical Journal* gives an interesting translation of a case of diabetes treated by Professor Korány, of Budapest, by the bromide of arsenic (*Wiener Med. Zeitung*, Jan. 16th, 1883). The patient was a man, aged twenty-two, who was completely prostrated by the disease, and who came to his clinic February 15th, 1882. Under the arsenic treatment, he was discharged on May 9th, 1882, so benefited that he was immediately enrolled for military duty. The amount of sugar in his urine at the start was from 170 to 411 grammes *per diem*, but this was eventually entirely suspended, even after the drug was withheld and a mixed amylaceous diet was resumed. For some days previous to the administration of the bromide of arsenic, he was put on a diabetic diet alone, and on the eleventh day (21st of March), there was scarcely a trace of sugar to be found. The dose used was from 3 to 6 drops a day.

The translator has under the same treatment a patient who presented much the same symptoms, in whose urine there is 7 per cent of sugar, but is unable as yet to give any pronounced opinion.

The drug is a compound of bromine and arsenic, the nature of which is not yet distinctly determined, but it certainly is deserving of more extended trial in diabetes. It is usually employed in form of "Clemens' Solution of Bromide of Arsenic," the formula of which was given in NEW REM., 1883, 372.



AUTOMATIC FILTRATION,

WHEN large quantities of liquids such as reagents, have to be filtered in the laboratory, it is often convenient to have some means by which the filter is kept filled. The usual "bird-fountain" method which is applicable in some cases has the disadvantages of requiring the inverting of large bottles or flasks filled with liquid, and besides this it does not maintain the liquid at a constant level in the filter.

The following apparatus has been found more convenient:

To the longer limb of a siphon is attached a short piece of India-rubber tube projecting a little beyond the tube; the India-rubber is closed by the narrow conical stem of a small glass globe which floats on the surface of the liquid in the funnel; when the liquid rises to a certain height, the float is lifted, and stops the flow of the liquid, the narrow stem on the flask, which passes some distance into the siphon, acting as a guide.

The apparatus keeps the liquid in the funnel at a constant level, and may be left without attention until the filtration is complete.—E. E. ROBINSON, in *Chem. News*, Dec. 7th.

Tincture of Nux Vomica.

I HAVE noticed the articles and notes which have appeared lately on the above subject. I have seen and tried many samples of the tincture supplied by wholesale houses, nearly all of which possess a peculiar drug-mill taste and odor, and are not so bright, clear, and bitter as they might be, and I consider the process given in the British Pharmacopœia unsatisfactory, the steaming, drying, and powdering preventing many chemists from making the powder and preparing the tincture therefrom. The following process I devised some few years ago. It is to make the tincture from the rasped beans, thus: place the beans, two at a time, in a small vice fastened to the edge of a table, and going over the beans with a long rough steel rasp, moving the rasp from left to right, not across the beans; this quickly reduces them to small particles; the small portion of the bean retained by the vice may either be thrown away or saved for making the powder of nux vomica. Now take of the rasped beans, 2 oz.; spirit of 20 per cent proof, 20 oz.; macerate with 15 oz. of the spirit in a closed vessel for four days, shaking occasionally, then transfer to a percolator and when the fluid ceases to pass, continue the percolation with the remaining 5 oz. of spirit; then press, filter, and add sufficient spirit of 20 per cent proof to make up to 20 oz. This makes a superior tincture, bright, clear and very bitter, and free from the contaminations of the drug mill. Care should be taken not to touch the vice with the rasp, but if such happens any particles of iron may easily be removed by a piece of magnetized steel. For chemists whose demand is small I would recommend the following process: Place 1 oz. of the drug in a bottle with 10 oz. of spirit of 20 per cent proof and macerate for ten to fourteen days, agitating occasionally, then filter. The spirit of 20 per cent proof I have found to give a far better tincture than when rectified or proof spirit is used.—P. GELSTON, in *Chem. and Drug.*

Tannate of Quinine in Mixtures.

IT is well known that tannate of quinine cannot be minutely divided or brought to the condition of a milk by mere trituration with water or syrup. Since this salt is so little soluble, its therapeutic activity should be augmented by as fine a division as possible.

G. Weiss recommends to accomplish this in the following manner: one part of tannate of quinine, one part of syrup, and one and one-half parts of alcohol are rubbed together, when complete solution will take place. The requisite amount of water is now added, whereby the tannate of quinine is again precipitated in form of an emulsion, being suspended in a very finely divided condition.—*Pharm. Zeit.*, Aug. 29th.

Solubility of Tasteless Tannate of Quinine in Gastric Juice.

E. C. FIELD, Ph.C., of Battle Creek, Mich., remarks that there are two varieties of tannate of quinine, one the tasteless tannate, the other the ordinary tannate obtained by precipitating the sulphate dissolved in dilute sulphuric acid, and which contains traces of the sulphate. The salt used in these experiments was made by the formula given in the Handbuch der Pharmaceutischen Praxis, Vol. II., 1,331, and gives a yield of forty parts of the tasteless tannate from ten parts of the sulphate. Mr. Field used as a solvent, in four trials, two-tenths per cent solution of hydrochloric acid. In two trials artificial gastric juice made by dissolving in 200 *cc.* of a two-tenths per cent solution of hydrochloric acid 4.147 grammes (64 grains) of pepsin, making a solution warranted by the manufacturers of the pepsin to dissolve 768 grains of freshly coagulated albumen, but which, on trial, was found capable of dissolving only one-twelfth as much. In two other experiments real gastric juice obtained by means of a canula from a healthy dog was employed.

Omitting the details of the experiments which also included the administration of the drug to the human subject, the writer considers it clearly proven that the tasteless tannate of quinine, as a medicine, is nearly and practically inert, and even if a strong digestive juice should be able to dissolve a minimum dose of eight grains (corresponding to two grains of the sulphate) the individual for whom the juice acted would receive the effect of about six grains of tannin, which might be the last effect desired.

Rum and Cinchona Hair Tonic (*Weekly Drug News*).

Tincture red cinchona	3 ounces.
Jamaica rum	1 ounce.
Glycerin	1 "
Tannin	½ drachm.
Cologne	9 ounces.

Mix well, and if necessary for a clear preparation, filter through magnesium carbonate. Apply twice a day, rubbing well into the scalp.

[The addition of the tannin is unnecessary and worse than useless. The condition of the scalp which calls for the use of a "tonic" demands the application of a local stimulant rather than one which shall serve as an astringent, and still further lessen the blood supply. In most cases a fatty substance which will prevent the hair becoming brittle and take the place of the natural fatty secretion (usually deficient in such cases), will be far superior to the above, and the use of a *soft* hair brush will stimulate the scalp and carry the oil to the roots of the hairs.]

Chloroform Water.

CHLOROFORM WATER, prepared by pouring an excess of chloroform into a bottle three-fourths full of distilled water, shaking, allowing it to stand until the excess of chloroform is deposited, and then decanted, contains ten grammes to the litre, and may be used as a local irritant in its full strength, or reduced with an equal or less quantity of water, for the relief of local pain. In using it, a hot poultice should be applied and followed by a compress wet with the solution, or when the pain is less severe, the compress, similarly wet, may be used alone. According to Vigier, chloroform water is more stable than chloroform alone, resisting the decomposing action of light indefinitely.

When used internally as a vehicle for bromides, salicylates, chloral hydrate, perchloride of iron, morphine, etc., or by itself, to relieve nausea, it should be much diluted withwater.

With its aid an emulsion may be made as follows, which will admit the prolonged use of gamboge as a hydragogue cathartic:

Gamboge	1 gramme.
Chloroform water (saturated)	200 grammes.
Orange flower water	250 "

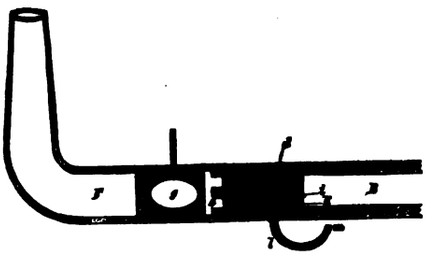
Emulsionize thoroughly. Dose: a tablespoonful in the morning.—*L'Union Médicale.*

Phosphatic Glass is said by Didot to be made from calcium phosphate, and to resemble ordinary glass (silicate of potash or soda). Tubes and retorts have been made from it, and are likely to be of service in the manufacture of compounds of hydrofluoric acid which does not attack it.—*Drug News* from *L'Union Pharm.*

GASOLINE BURNERS FOR LABORATORY USE.

DR. F. URECH is the inventor of a laboratory lamp intended for the burning of the low-boiling portions of petroleum (spec. grav. 0.69 to 0.70, boiling between 70° and 120° C.).

A reservoir containing the gasoline, constructed of tinned iron or copper, and closed with a screw-stopper, is suspended in a suitable place on the wall, or on the outside of the building. From the bottom of the reservoir a tube (*B*) leads to the burner. Through the entire length of the tube *B* passes a wick. At the end of tube *B*, it is provided with a stop-cock sitting in a metallic filling *c*, and perforated with a fine hole, which terminates against a metal plug *e*, pierced by several still finer channels, through which the fluid



finds its way into the lamp proper. Fig. 1 shows the general aspect of the end of the tube *B* with the lamp attached. Fig. 2 shows the position and shape of the faucet. Behind the faucet, and communicating with the interior of *B*, by a fine channel, is a curved tube *m*, the object of which is to start the volatilization and gradual warming of the fluid in the tube *B*, so that it may arrive in the lamp in a gaseous condition. When the faucet *n* is turned off, the channel in *m* still communicates with *B*. The burning material, after it has passed through *e*, enters the burner proper, where it becomes mingled with air through the lateral orifice *g*, the size of which may be regulated by means of the slide *h*.

The highly inflammable character of the burning material makes it necessary to observe certain precautions:

1. The reservoir should not be entirely filled, so that when the liquid becomes warm from any cause, it will not have to find an exit by force.
2. The screw-cap of the reservoir must fit air-tight, which is best accomplished by using a washer of soft lead.
3. The preliminary warming of the fluid in *B*, by means of a special lamp (if this is preferred), must take place while the faucet is tightly closed.
4. A preliminary warming is always necessary, to cause some of the liquid to become gaseous. If too little heat has been applied, the flame of the burner is feeble, even if the faucet is wide open. After the proper degree of heat has been obtained, it is kept up by the small flame issuing from the curved tube *m*.

The above-described lamp has been constructed by, and may be obtained from, C. Lilienfein, of Stuttgart.—Abstract from *Zeitsch. f. Anal. Chem.*, 1884, 35.

Phenolphthalein is one of the most delicate indicators known for alkalimetrical or acidimetrical determinations. It should, however, be remembered that it is unsuitable in presence of ammonia or in the determinations of carbonates.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 3. WHOLE No. 117.

FRED'K A. CASTLE, M.D., - EDITOR

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

MARCH, 1884.

SUBSCRIPTION PRICE per year, ... $1.00

SINGLE COPIES, ... 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

The Quinine Market.

THE recent developments in the quinine market have been one of the periodical surprises of the trade. After having become accustomed, for some time, to a moderately steady price of quinine, we were rather taken aback, a few weeks ago, by the announcement that the English makers had backed out of the combination which was reported as having been entered into by all the manufacturers; that they had suddenly lowered the price and had thrown large quantities of quinine on the market. This action was immediately followed by the Continental makers, so that German and Italian quinine was offered in our market at lower figures than had been known for years. Naturally, the American manufacturers had to accept the situation, though reluctantly, and reduce prices also, though several of them held back for a number of days before making their determination known. Reports have reached us of future deliveries at prices even considerably lower than the lowest cash-price paid for quinine within the last fortnight. Yet it is not improbable that the consignees of these invoices will be able to dispose of them, after their arrival, at a material advance. The sudden drop in the price naturally induced many to purchase, and the sudden tide in demand has no doubt been the cause of a slight stiffening of the market some days ago, which may be expected to continue at least until the expected shipments from Europe arrive. Possibly, the price may remain firm for some time afterwards, but as soon as those who have decided to put in a respectable stock are provided, it is not at all unlikely that the price will undergo a further reduction.

The existence of a private understanding between the manufacturers of quinine throughout the world (and we believe there are about seventeen altogether) had long been known to those who have a chance of peeping behind the scenes, and had been suspected by the public at large; yet that the combination had such a firm control over the market was known perhaps to only a few. It should be stated here, however, that the English and also the American makers deny having entered the syndicate with any binding pledges, but assert that they merely agreed to maintain the prices. According to another version, the American makers were active and pledged members of the syndicate, while the English were voluntary and unpledged.

What the continental manufacturers are going to do under the circumstances is not very clear at present. While it is well-known that they have thrown on the market a considerable quantity of stock at reduced prices, it is equally well known that they have still plenty of stock on hand. Their expectations of being able to distribute and place their stock with dealers and consumers in quantities equivalent to the expected consumption and previously-gained experience, appear to have turned out fallacious, since it appears that both dealers and consumers preferred to live from hand to mouth, which was no doubt due to a suspicion, on their part, of an impending break in the combination.

It is a serious question at present what effect the unfettered competition of the manufacturers will have upon the market in general and upon American manufacturers in particular.

That the latter are at a financial disadvantage in comparison with most European makers—at least since the duty on quinine has been removed—any one who fairly and understandingly inquires into the subject will admit. Nevertheless, the excellence of the American product, and a peculiar preference, in many sections of the country, for the home-made article, enabled our makers to obtain better value for their product than the foreign article would bring, though equally handsome and pure, and sometimes perhaps purer. And, though closely pressed by competitors, the secret combination and understanding between the manufacturers at least permitted our own makers to obtain living prices, not to mention fair profits; but, with the combination broken, it will become a serious question how far or how long it will pay our own makers to continue the manufacture, or how soon they will be crowded out.

It behooves us to look at both sides of the question, both on that of the manufacturer and on that of the consumer. While it is natural that the dear public should rejoice in being able to buy their supply of quinine at reduced rates, and chuckles over the gain it has made through the war between the manufacturers, it would nevertheless be a national calamity if the regular manufacture of quinine in this country should ever be interrupted or seriously interfered with, and we should thereby become dependent mainly upon foreign supplies. This is a question of public policy and political economy which appears to us to deserve the attention of the national Legislature perhaps more than many of the propped-up and "fostered" home industries which it is so fond of taking care of.

A Proposed New Pharmacopœia.

THE subjoined bill, to establish a pharmacopœia under the auspices of the general government is rumored to have originated in Philadelphia. Thus far, the only indorsement it has received in medical or pharmaceutical journals has appeared in the *Journal of the American Medical Association*, of Chicago, and in the *Medical News*, of Philadelphia, the periodical that obtained notoriety through its quinine-pill analyses (so-called). With these exceptions, so far as we are aware, the bill has met with little favor.

"A BILL to prepare and publish a national pharmacopœia for the United States.

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the Secretary of the Treasury shall, as soon as practicable, detail two officers of the Marine Hospital service, and the Secretary of War shall detail two officers of the medical staff of the Army, and the Secretary of the Navy shall detail two officers of the medical staff of the Navy, for the duty of compiling and preparing a pharmacopœia, which shall be known as the "National Pharmacopœia of the United States of America," and shall be held and accepted as the standard for the purveying, compounding, and dispensing of drugs or medicinal agents, and shall be taken as authority in the Treasury Department on all questions arising under the tariff laws of the United States, with regard to the nomenclature, description, and purity of drugs or remedial agents, and shall further be received as evidence in the United States courts. And the matters contained in the said pharmacopœia shall be free for use by all authors and commentators, for the benefit of the medical and pharmaceutical professions and of the community at large; and it shall not be lawful for any one to reprint and publish the said pharmacopœia as a whole.

"SEC. 2. That the medical officers detailed as above provided shall invite the American Medical Association and the American Pharmaceutical Association, at their next annual meetings, to form committees of not more than three members from each of the said associations, which committees, if so appointed, may co-operate with the above-named medical officers in the preparation of the said pharmacopœia, forming a board which shall have power from time to time to add to its number as may in its judgment be necessary, and which shall elect a chairman and a secretary, and adopt such rules as it shall see fit for the expediting and perfecting of the said pharmacopœia, which, when completed, shall be printed under the supervision of the said board; and an edition of not less than five thousand copies shall be printed, for use in the several departments of the Government of the United States; and copies may be furnished to private persons, in accordance with the provisions of section thirty-eight hundred and nine of the Revised Statutes.

"SEC. 3. That for the purpose of defraying the necessary expenses of preparing the said pharmacopœia the sum of five thousand dollars is hereby appropriated out of any moneys in the Treasury not otherwise appropriated, and the same shall be disbursed under regulations to be prescribed by the Secretary of the Treasury.

"SEC. 4. That the said pharmaco

pœia shall be revised once in ten years, upon the plan embodied in this act."

The following editorial article on this subject appeared in the *New York Medical Journal* for February 23d:

"Thoughtful and right-minded men are generally supposed to agree that all government is a necessary evil, never to be amplified save as a necessity; but it seems occasionally as if a portion of the medical profession were straying away from this sound position, and, like the children of Israel of old, were pining for a king. The latest example of this tendency that has come to our notice is the movement in favor of a new pharmacopœia, in furtherance of which a bill has been introduced into Congress providing for the issue of a new pharmacopœia by the Government. It is argued that the Pharmacopœia ought to have the force of law. Now, there is a grain of truth in this broad proposition; but, for all legitimate purposes, any State can give the present pharmacopœia the force of law, and, for that matter, a court can do the same, as was lately exemplified in Massachusetts, where several manufacturing druggists were punished for furnishing pharmacopœial preparations that were not up to the pharmacopœial strength.

"It seems to us that a standard strength and a standard purity are all that the Government can legitimately enforce in the matter of drugs, but this is not all that it might assume to do if the Pharmacopœia were to be made a legal standard in the full sense of the term. In the case of most preparations, the Pharmacopœia lays down detailed processes. To make it incumbent on pharmacists to adhere slavishly to these processes, however good they may be in the present state of the art, could not but act as a clog upon the advancement of pharmacy. Even if this were not the case, we can see no good object to be gained by giving legal force to the Pharmacopœia, except in so far as may be necessary to provide against danger to the community from the administration of drugs of greater strength than the prescriber supposes, and to guard against fraud on the part of dealers in the matter of drugs of inferior strength or purity. Further than this there is no occasion to go, and further than this the Government cannot go, in our opinion.

"It is perfectly competent, of course, for the Government to assume the expense of issuing a pharmacopœia, if that is the point aimed at, but even that would be contrary to the traditions of our Government, and seems to be wholly uncalled for, as the present pharmacopœia is entirely self-supporting. It is only a little more than a year since the revision of 1880 was issued, and we understand that there is already a surplus of money in the hands of the committee, in whom the copyright is vested.

"But, not only has the book met with this material success; it has proved a *succès d'estime*, reflecting the highest credit upon the committee and upon the state of pharmaceutical science in America. Faults it has, beyond question, as we were not backward in pointing out, in a series of articles we published on it about a year ago, but for the most part they are trifling and not for a moment to be weighed against its great merits. It may be said of the revision of 1880 (what could never before be said of a United States pharmacopœia) that it has commanded the admiration of all competent critics, however critical, both at home and abroad. The present time seems, therefore, very inopportune for changing the method of constituting the body of men to whom the prosecution of the work of revision is confided. It is extremely doubtful if a committee appointed by the Government would do the work even as well as the committee of 1880 did it. The point is urged, we understand, by the supporters of the bill, that the Medical Corps of the Army, the Navy, and the Marine Hospital Service should be largely, if not wholly, charged with the work; but it should be remembered that the present method of constituting the committee gives a liberal representation to those branches of the public service. All things considered, we must express the hope, therefore, that the profession will show its appreciation of the great amount and the creditable character of the work done for it by the committee of 1880, by declining to sanction this move to supplant the method which has been found to work so well."

The above is a fair example of the criticism which the proposed act has elicited. It fails, however, to notice some objections to any immediate or radical change in standards of strength or purity, viz., that manufacturing pharmacists have but lately modified their processes and methods to correspond with the demands of the pharmacopœia of 1880, and physicians and pharmacists generally have devoted more attention, since its publication, than ever before to acquiring familiarity with official drugs and preparations. It can hardly be expected of them, therefore, that a proposition to make another change in authorities before the expiration of a reasonable period of time can receive much favor outside of the limited number of persons who are more or less directly interested in the proposed change.

It is rather remarkable, in this connection, that, when Dr. E. R. Squibb proposed, a few years since, to change the method of organizing the Convention so as to place the revision of the work, practically, under the auspices provided for in the above act, the leading opponents of the plan were Philadelphians, and that their principal effort was to show that the plan already in operation is the one to be preferred. The Convention of 1880 was called, and the subsequent revision was conducted accordingly; but the Convention adopted measures which reformed the methods of revision and removed the control of the work from Philadelphia. It becomes, therefore, of interest to inquire whether the "change of base" manifested in the "City of Brotherly Love" can have any relation to the acts of the Convention of 1880.

The New York Druggists' Union.

MUCH enthusiasm has been shown in the organization of the local union of the drug-trade, as will be appreciated from the brief account given elsewhere in this number, and it is to be hoped that much good will result, not only in the matter of profits on "patents," but, ultimately, in other matters affecting the retail trade.

Just now there seems to be a feeling that the unfortunate state of the business is owing to the competition with general stores and cutting pharmacists in goods which are not, strictly speaking, legitimate pharmaceuticals, but it is quite possible that there are too many persons in the business, and that this, rather than rate-cutting, is at the bottom of all the trouble.

ATTENTION is called in a recent number of the *Pharmaceutical Record* to the fact that about half the persons in business as retail druggists in this city have not complied with the law requiring them to be licensed by the Board of Pharmacy. We are also informed from other sources that there is some question as to whether the Board of Pharmacy is itself constituted in accordance with the law, and in a position to enforce the law in cases where interference is demanded; moreover, the question arises, whether licenses issued by the Board (if it is so illegally constituted) are of any value.

The journal above quoted also says that the provisions of the law respecting the sale of poisons are constantly violated, and instances are reported to us which confirm this statement.

Now, all of the foregoing, if true, shows a most surprising and unfortunate condition of affairs in a community where much time and money have been expended to secure a local pharmacy law, and it does not speak well for the ultimate success of the State law now before the Legislature. If the enforcement of a local law in New York is attended with such difficulty, as we are led to understand from the recent report of the Board of Pharmacy, what may we expect in the case of a State law, the administration of which must be far more troublesome?

It must be recognized that, in either case, the enactment is the result of efforts made by pharmacists themselves and is not in response to a popular demand. The burden of its enforcement must, therefore, fall upon those who indorse it. Thus far but little seems to have been done in this direction by pharmacists, and next to nothing by the public generally. It cannot be surprising, in view of the present want of interest on the part of the promoters of the law, that its provisions should be disregarded.

We will suggest that the Board of Pharmacy should publish, annually, on or about the 1st of June a corrected list of all pharmacists and assistants who are duly registered, including, also, their places of business. This publication should also give the text of all laws affecting the sale of drugs in this locality, and should be sent to every pharmacist, to the editor of the *Medical Register*, and to the Medical Society of the County of New York. This list should not only be arranged alphabetically, but also according to location, in the manner of the "Street List" of physicians in the *Medical Register*. In this way the influence of the medical profession might be secured in aid of the proper enforcement of the law.

Coalition of Drug Journals.

The Independent Record, a weekly paper which has lately taken the place of the "*Independent Oil and Drug Journal and Paint Review*," is authority for a statement that the recent coalition of drug journals is due to the efforts of the Standard Oil Company. This corporation, so it appears, has bought up the interests in "*The Drug, Oil, and Paint Trade*," "*New York Drug Bulletin*," "*New York Druggists' Price Current*," "*Soap-Maker's Journal*," "*The Oil and Paint Review*," "*The American Pharmacist*," "*The Weekly Drug News*," and "*The Druggists Circular and Chemical Gazette*;" these various publications having been merged into the "*Oil, Paint, and Drug Reporter*," the "*Weekly Drug News*," and the "*Druggists Circular*." It is not unlikely that this process of condensation will shortly result in a single journal controlled by the Standard Oil Company. Whether this corporation meditates a course of operations in drugs and chemicals similar to that which it is said to have pursued in the oil trade, we have no means for knowing, and time alone can prove, but it must certainly be in the interests of the entire drug trade to give their support to journals which are independent of the control of a powerful monopoly, rather than to such as may be used to further the interests of one or more corporations instead of the welfare of the trade generally.

Gelatin Suppositories.

EXPERIENCE has shown that no one formula can be considered as universally suitable for making gelatin suppositories because samples of gelatin vary in their melting points and consequently cause much variation in masses made therefrom. Individual experiment is therefore required to obtain a basis having a melting-point of from 90° to 95° F. As a guide it may be taken that two parts of gelatin, four of water, and seven of glycerin (all by weight) will give a basis very near the desired standard, and it may be brought to the exact point by the addition of soaked gelatin (when too soft) or of glycerin and water in the above proportions (when too hard). The melting point may be ascertained by dropping a piece of the basis into water heated to the desired degree in which it should melt within five minutes. The proportions of glycerin and water which we give are calculated to avoid smarting from superabundance of glycerin and shrinking (from deficiency thereof). The suppositories are made in the ordinary way, the moulds being slightly oiled. The weighed quantity of the mass is melted by a gentle heat, the medicament in fine powder gradually added, and when such is soluble the gentle heat should be continued until solution is effected, the effect of any loss of water being counteracted by the facts that salines lower the melting-point of the basis.

It matters little what gelatin is used provided the proportion required is always ascertained. Russian gelatin suits very well, and is cheaper than Cox's or Nelson's, but *for any kind*, fresh stock should always be experimented with before the proportion, as used of old stock is adopted. The gelatin should be soaked in the water over night, the glycerin then added, and solution effected by the heat of the water-bath.—*Chem. and Drug. Diary.*

Vanillism.

DRS. LAYET and ARNOZAN have communicated to the French Association for the Advancement of Science the results of their researches on the physical qualities, the effects and the parasites of vanilla. They cited several cases of poisoning by eating of vanilla ice-cream. It was at first supposed to be due to the formation of lactate of tin in the vessels, but cases of poisoning followed the use of the same stock of vanilla in the hands of a confectioner in another city, who had purchased it. There were other cases in Berlin.

The symptoms simulated cholera, continued vomiting, diarrhœa, epigastric paid, cramps in legs, face and extremities cold and purple. The symptoms ensued in about two hours after eating, and recovery in three or four hours.

Among operatives, those who cut the vanilla into small pieces are troubled with papular eruptions of the face and hands, with local heat and swelling, irritation of the eye and lids, and oftentimes patches of redness and desquamation.—*Boston Medical and Surgical Journal.*

Thready Orange Flower and Other Waters.

IN one of his practical papers in the *Journal de Pharmacie et de Chemie*, Mr. P. Carles describes a simple means of clearing off the parasitic threads which so readily form in many of the distilled waters, such as orange and elder flower and some rose water, rendering them often viscous, albuminous and useless. The susceptibility to this impregnation is in direct relation to the quality of the water. Some writers, says Mr. Carles, have proposed the addition of tannin to the waters; but that, he says, changes their flavor and odor, and even then it does not succeed. Others, more thorough, recommend a redistillation with needs a tedious operation even if one has a still, and which, after all, leaves the most valuable portion of the product in the apparatus. The most usual treatment of waters which have become so affected is to throw them into the gutter. Acids and salts of lead, copper, or silver Mr. Carles has found will kill the parasites, but there are objections to the use of these, and the best method, he states, is to make a few grammes of the subnitrate of bismuth into a milk, and shake it for a minute or two with the affected water. This does not injure the properties of the water in the least. Two or three grammes of salt are sufficient for a litre of the water, but it is better to use rather more, and the salt may be used repeatedly if it be slightly calcined after recovery. The water thus treated will clarify itself in a few hours and, in ordinary conditions, is not liable to re-invasion of the parasites.—*Chem. and Drugg.*

Croton Oil Blisters.

G. GUÉRIN reports that he has for some time past prepared very active blisters from croton oil for the service of Prof. Mayet in the hospital at Antiquaille.

The vesicating portion of croton oil, the so-called crotonol, is easily extracted from the oil by shaking together, in a bottle, equal parts of croton oil and alcohol of ninety per cent, and setting aside until two layers are formed. The alcoholic layer contains the crotonol. This is separated and exposed in a capsule until the alcohol has evaporated.

The resulting residue is somewhat more viscid than the original oil, and very highly active.

To prepare blisters, pieces of silk of suitable size are cut, and fastened by the hand upon diachylon plaster, and enough crotonol is applied to the silk to thoroughly saturate it.

The results are reported to have been "absolutely satisfactory."—*Bull. de Pharm. de Lyon.*

Oil of Birch.

OLEUM RUSCI, according to Mr. Peter Acewan, is nothing more or less than oil of birch, and derived from the *Betula alba*, or white birch. Its use has chiefly been in the manufacture of Russia leather, to which it imparts the characteristic odor. It is chiefly made in Russia and Poland by dry distillation of the bark, twigs, and rootlets. It is a thick, reddish-brown or brownish-black liquid, sparingly soluble in water, but to a great extent in alcohol and ether, the specific gravity of the redistilled oil being 0.800 to 0.987.

Birch-bark by moderate heating gives off a camphoraceous body called betulin ($C_{30}H_{50}O_3$), which may also be extracted by means of alcohol, and which, although without odor or taste at ordinary temperature, gives off the odor of Russia leather when heated to 258° C.

Among Russian peasants the oil is highly esteemed as a domestic panacea, and by physicians in Russia and Germany is used in skin diseases.

In a paper on this subject in the *Pharmaceutical Journal*, Mr. Macewen speaks of several articles resembling oil of birch which have been substituted for it commercially, which very likely accounts for the failure of English dermatologists to derive the expected effects from its use.

Pungency of Tincture of Iodine and of iodine liniment is said by W. H. Darling to be due to acetone developed when methylated alcohol or wood-spirit is used.

Water-Cress in Therapeutics.

GRELLETY (*Gazette Hebdomadaire de Médecine et de Chirurgie*) claims that the water-cress is not as wholesome as is generally supposed, and, as it contains a nitrogenous essential oil, with allyl for its base, together with a bitter extractive, iodine, iron, and phosphorus, it might be regarded as an irritant. Dujardin Beaumetz regards it as of value in diabetes and eczema, but the French officinal syrup was a bad preparation, having a disagreeable sulphurous odor. Gueneau de Mussy recommends the fresh juice, squeezed out by a press, combined with a little syrup of orange peel. It was the general opinion of the French Therapeutical Society that, when old and of rank growth, water-cress might act as a stomach irritant, but the young plant is free from such properties.

"Vanado-Sulphuric Acid" as a Reagent for Alkaloids and Particularly for Strychnine.

K. F. MANDELIN has found that a peculiar compound, obtained by him from vanadium, is a most delicate reagent for alkaloids in general, and particularly for strychnine, inasmuch as the peculiar color reaction obtained with the latter differs from all other strychnine reactions so far known.

The reagent is prepared by dissolving one part of vanadate of ammonium in 100 parts of strong sulphuric acid. It is called, by the author, for short, Vanado-sulphuric acid ("Vanadin-Schwefelsäure"), though this name, strictly speaking, would belong to a compound acid.

If strychnine be treated with a few drops of this reagent (even when diluted with an equal quantity of strong sulphuric acid), upon a watch-glass, on inclining the latter so as to let the acid flow on one side, the residue will assume almost instantly a magnificent blue color, which soon passes into violet, afterwards into vermilion, red, or orange. On adding to the acid, after the vermilion tint has made its appearance, a little soda or potassa, a quite persistent rose-red to purple color is obtained, which is rendered still more handsome by dilution with water. The same color appears even with simple addition of water, and the liquid afterwards bears dilution with water without losing its tint.

If the quantity of alkaloid is small, the test is best performed in the following manner: The alkaloid, or the residue obtained in any manner from substances suspected to contain an alkaloid, is put on a watch-glass, covered with a few drops of the reagent, and kept so (for a few moments) until the solid matter appears to assume a bluish tint or begins to acquire color. Then the watch-glass is inclined to one side so that the liquid portion may flow off the solid residue. If there was any strychnine present, the handsome blue color is most vivid at the moment when the acid uncovers the residue. With quantities as small as $\frac{1}{100}$ milligramme of strychnine, the color was still quite pronounced, much more so than the color obtained with other reagents for strychnine.—Extract from the author's pamphlet "Ueber Vanadinschwefelsäure." 8vo. St. Petersburg, 1883.

Santonin is recommended by Dr. U. Anderson in the *Lancet* as a remedy for gleet. Having employed it to secure the destruction of intestinal worms, the patient remarked that the remedy had not only killed the worms, but also cured a long-standing gleet. Dr. A. advises its use in doses of five grains, triturated with an equal amount of sugar of milk, to be taken twice daily in milk, fasting. —*Pharm. Jour.*

Effects of Cotoin and Paracotoin.

THE *Lancet* (Oct. 20th, p. 704) gives a summary of some recent investigations of Albertoni on cotoin and paracotoin, which were published in the *Archiv für exp. Path. und Pharm.* (Sept., 1883). Albertoni finds that repeated small doses of cotoin increase the appetite of healthy men without causing unpleasant sensations and without producing constipation. It does not become dissolved in the gastric juice, but passes unchanged in the intestines, where it would appear to be absorbed, as it is excreted by the urine. The falling off in the amount of indican in the urine during the use is supposed to be due to a secondary effect, which depends on the cure of the internal lesion. The experiments made show that cotoin can determine an active dilatation of the vessels of the abdomen, an action not known to be possessed of any other substance. Paracotoin is weaker than cotoin in its physiological action. Albertoni considers that cotoin is of value in the diarrhœa met with in the various forms of mental disease, in chronic intestinal catarrh, in looseness of cachectic states, and in the relaxation of pellegra, phthisis, and rickets. Its use is contraindicated in states of severe hyperæmia of the intestines, and where a tendency to melæna exists. Doses of 15 and 20 centigrammes per day were thought to be more effectual than smaller ones. The administration of bismuth with cotoin is suggested as likely to be of special value.—*Pharm. Journal.*

Melting Point Determinations.

IN the course of an elaborate paper on the Use of Mercury Thermometers, by J. M. Crafts, the author makes the following remarks which will be found of interest.

When a sufficient quantity of a substance can be disposed of, it is best to introduce a small and sensitive thermometer into the liquid, and to observe all the changes of temperature during the complete solidification. It is usual to take melting points of small quantity of matter in a capillary tube attached to a thermometer, and both are heated in a sulphuric acid bath or in a paraffin bath,* for temperatures higher than 300°. It is only necessary to remark upon a modification of this process in which the apparatus contains an interior tube which is used as an air bath, surrounded by sulphuric acid. This form of apparatus was devised to prevent the sulphuric acid from escaping into the air, and to prevent the sulphuric acid from attracting moisture. These ends could be obtained more simply otherwise, and the apparatus has a grave defect. It is only necessary to heat a large and a small thermometer together in an air-bath at changing temperatures to see that one is constantly behind the other in its indications, and it is quite certain that a small mass of substance in a capillary tube would be usually heated more quickly than a thermometer placed beside it, when they are both heated in an air-bath at rising temperatures. It is therefore indispensable in melting-point determinations to heat the thermometer and the capillary tube together in a liquid, and not in any form of air-bath. The numerous forms of apparatus proposed for observing points of fusion have often been applied with good results to special cases, but the ordinary method is on the whole the most convenient, and few substances are known of sufficient purity to demand a process of greater accuracy. The method which is most nearly perfect is that which is always used with melting ice, and it would be interesting to heat such other solids as can be obtained pure in sufficient quantities in an air-bath at a temperature somewhat higher than their melting-points and to observe the degree of constancy attained by a thermometer properly surrounded by the melting solid.—*Am. Chem. Journal.*

* It is not difficult to find English paraffin candles which are so well purified that after distilling a small portion of the more volatile hydrocarbons it enters into active boiling above 370°.

Caffeine besides Theobromine in Cacao.

WHILE engaged in the operation of preparing theobromine from cacao beans, Herr Schmidt has observed (*Archiv* [3], xxi., 675) the separation from the last mother liquor of a small quantity of long acicular crystals, corresponding in appearance and behavior with caffeine, which was obtained pure by dissolving in cold benzol and recrystallizing the evaporation residue from hot water. The occurrence of a second crystalline alkaloid, "existing in larger quantities in some descriptions of cacao than in others, and in larger proportion in the husk than in the kernel," had been previously recorded by Mr. Bell (*Analysis and Adulterants of Foods*, p. 85), who, however, only speaks of it as a "theine-like alkaloid," containing 25.48 per cent of nitrogen (anhydrous caffeine contains 28.86, and with one molecule of water, 26.41 per cent). Herr Schmidt, however, found the alkaloid to be identical with caffeine, and the gold salts to correspond exactly in appearance and in composition. The two alkaloids may be separated by taking advantage of their different solubility in cold benzol.—*Arch. d. Pharm.* and *Pharm. Journ.*

Adulteration of Black Pepper.

GEO. C. HALL, Ph.C., of Kalamazoo, Mich., reports an examination of twenty-five samples of so-called black pepper collected from grocers and druggists in Kalamazoo and Ann Arbor, five being from druggists, and of these three were pure, one contained wheat starch, and the other both wheat and buck-wheat starches. Only two of the twenty samples got from grocers were pure, the remainder were adulterated with wheat, buck-wheat, and bean starches in various proportions, and in the order mentioned. In the druggists' samples the adulteration were five and ten per cent, while in the grocers' samples the percentage was from five to sixty.—*Contrib. from the Chem. Lab. of the Univ. of Mich.*

The Determination of Nitrites by Permanganate.

LEONARD P. KINNICUT and JOHN U. NEF have re-examined the process of assaying nitrite of sodium and nitrite of potassium by means of solution of potassium permanganate of known strength.

When carried out even with care, the results were found to be uniformly short of the required figure by about 16 or 15.5 per cent, but among the different results obtained there is a remarkable uniformity.

The same uncertainty, according to the authors, attaches to the estimation of sulphites by means of permanganate.—From *Am. Chem. Journ.*

[Note by ED. A. D.—The U. S. Ph. has adopted the permanganate process for the assay of spirit of nitrous ether. It is well known that the nitrite of potassium obtained as a step of this process is usually contaminated (or, at least, likely to be so) with other substances which likewise reduce the permanganate. And even if no other substances were present, the results of the two authors mentioned above would show that no reliable data can be obtained by this test. It seems to us that the only safe method is to estimate the nitrogen as gas, and a good method for this, easy of execution, is still a desideratum.]

NOSTRUMS.

[*The following formulas are copied from various sources, and published without editorial guarantee as to their reliability.*]

Thomas' Electric Oil. (L. L. Briggs, New Hampton, Ia., in *New Idea.*)

Gum of camphor	℥ ¼
Oil of gaultheria	℥ ¼
Oil of origanum	℥ ¼
Chloroform	℥ 1
Laudanum	℥ 1
Oil of sassafras	℥ 1
Oil of hemlock	℥ 1
Oil of turpentine	℥ 1
Balsam fir	℥ 1
Tincture of guaiacum	℥ 1
Tincture of catechu	℥ 1
Alcohol	O4
Alkanet sufficient to color.	

Mexican Mustang Liniment. (*St. Louis Druggist.*)

Linseed oil	4 parts.
Turpentine	4 "
Barbadoes tar	1 part.
Crude petroleum	1 "

Morfit's Hair Tonic. (*Weekly Drug News*).

One-half ounce of vinegar of cantharides is mixed with one ounce each of cologne and rose water; or one-half ounce tincture of cantharides is mixed with two ounces of cologne water, one-half drachm oil of nutmeg, and ten drops of oil of lavender. If too strong, dilute with cologne water.

Nepenthe, according to a correspondent of the *Chemist and Druggist*, yields .07 gramme of morphine to the fluid ounce, and he gives the probable formula as:

Tartrate of morphine	gr. iij.
Sulphate of morphine	gr. i.
Sherry	℥ i.

On subsequent consideration, however, it was concluded that the sulphate alone was employed, a frequent deposit of calcium sulphate resulting from the reaction between the sulphate of morphine and calcium tartrate contained in the sherry.

Himrod's Asthma Cure. (J. S. Hearn, Pine Bluff, Ark., in *Druggists Circular.*)

"I bought the receipt in Denver, Col., in 1875. It was used extensively there, and said to be the original. It is as follows:

Powdered lobelia	2 ounces.
" stramonium leaves	2 "
Powdered nitrate of potash	2 "
Powdered black tea	2 "

Mix, and sift well."

Kings' Great Discovery." (Stearns' *New Idea.*)

The following is said to embody the essential elements of this nostrum, and give a mixture which is equally serviceable.

Tar (pine tree)	60 gr.
Powdered sugar	960 "

Mix intimately by trituration in a mortar, and add gradually a mixture of six fluid drachms each of alcohol and water; then add enough "Golden Drop" syrup (*i. e.*, glucose and cane-sugar syrup) to make five and one-half fluid ounces, having previously placed into the bottle:

Oil of anise	2 gr.
Chloroform	60 "
Fl. ex. wild cherry	96 "
Fl. ex. ipecac	48 "

Mix, and strain after allowing it to stand for several hours.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,235.—**Kairine** (P. A.).

The name *kairine* has been given by Dr. Otto Fischer and Wilh. Königs to a synthetic compound, the proper chemical name of which is "oxy-quinoline-methyl-hydride" (see NEW REM., 1883, 41). The name kairine was chosen to facilitate its practical application, since it was found to be a valuable medicinal agent for reducing febrile temperatures. Besides this body, an allied compound, namely, the "quinoline-methyl-hydride," was also found to have similar properties, and for this the name *kairoline* was chosen.

On the therapeutic uses, etc., of kairine, compare NEW REM., 1883, pp. 41, 118, 174, 236, 242, 267, 343.

The first reports regarding this remedy were exceedingly laudatory, but, as it will generally happen with a new and highly-praised drug, unfavorable reports shortly afterwards made their appearance, which greatly retarded its introduction and further study. The period of its probation, however, seems now to have been passed, since a decided reaction in its favor has set in among competent medical practitioners who are wont to observe closely and critically, and who are not likely to be won by the mere novelty of a thing.

When the discoverer of the new compound desired to place it on the market, it was at once found that it could be made to advantage and at a reasonable price only in works where quinoline was manufactured on the large scale, and where the operations of substituting methyl, ethyl, and other radicals in organic compounds were carried on as a regular branch of business. Such establishments are the large factories of aniline colors, and it was one, the largest of these, namely, the firm of Meister, Lucius & Brüning, of Hoechst on the Main, which undertook the manufacture.

At first only very small quantities, and those of a rather inferior look, could be turned out, owing to the great trouble and difficulty of the process, it being found particularly difficult—as we have been given to understand—to properly methylate the quinoline. After a while, however, it was ascertained that, by substituting *ethyl* instead of methyl the process was greatly facilitated, while the product had the same properties as that made before. Hence the preparation of the *methyl kairine* was abandoned (or nearly so), and the *ethyl kairine* worked out as a product. The same kind of experience was made with *kairoline*, which is now made to contain ethyl instead of methyl, and is therefore identical with the "quinoline-ethyl-hydride" discovered some time previous to Fischer and König's researches by Wischnegradsky.

There are, therefore, really three different preparations to be distinguished:

1. *Ethyl kairine*, distinguished by the manufacturers as "*Kairin E.*" (so on the label, or the label is merely "Kairin.") This is the compound generally supplied when simply "*Kairine*" is asked for. Indeed, it is probably at present the only kind to be had in this market. If this is given in doses of 20 to 30 grains, the temperature is lowered for some six hours. According to Dr. T. A. McBride, it is best given in 3½-grain doses, every hour or half-hour until the temperature is reduced to 101°; as soon as this gives the slightest indication of again rising (which must be watched carefully) another dose of 3½ or 7 grains is again to be given, and continued if necessary.

1. *Methyl kairine*, distingushed by the manufacturers as "*Kairin M.*" This is the substance at first made and supplied. The dose of this is 0.5 to 1 gramme (7½ to 15 grains). The temperature is rapidly lowered by it, but rises again rapidly.

3. *Ethyl kairoline*, distinguished by the manufacturers as "*Kairoline E.*" We believe there is no methyl kairoline made now. Kairoline E. is said to act like Kairine E.

For further information regarding the proper method of administering kairine and its sphere of application, you should consult a paper on "Kairine in Typhoid Fever and Albuminuria in Intestinal Hæmorrhage," by Dr. Thomas A. McBride, of New York, in the *Medical Record* of December 15th.

No. 1,236.—**Exhausting Buckthorn Berries** (F. H.).

This correspondent asks, "What is the most suitable menstruum for exhausting buckthorn berries? I have been using diluted alcohol, but a very copious deposit occurs after the fluid extract is made but a few days, almost as heavy, in fact, as frequently occurs with the parsley. Perhaps more alcohol would produce better results."

One cause of the precipitate in the fluid extract made with diluted alcohol is no doubt the grape-sugar extracted during the process, which gradually separates on standing. To increase the amount of alcohol in the menstruum would probably result in a smaller proportion of this sugar being extracted. The active principle discovered by Winkler in the juice of the berries, namely rhamnocathartin, is soluble both in alcohol and in water; hence it seems plausible that a fluid extract made with a stronger alcohol will contain this principle and be at the same time less liable to form a precipitate. If a *syrup* of buckthorn berries will answer the same purpose, this is best made by allowing the expressed and strained juice of the crushed berries to undergo a slight fermentation, so as to destroy the pectin-bodies. Then five parts of the fermented juice are made into syrup with nine parts of sugar.

The fermentation of a fruit-juice like that of buckthorn berries, cherries, etc., is best performed in the following manner, according to Hager:

The crushed or mashed fruit is mixed with two per cent of sugar and exposed for three or four days in a suitable vessel to a uniform temperature of 20° to 25° C., being stirred up several times each day. As soon as no more fermentation is visible, and a sample of the juice is found to run easily through a filter, and when 5*cc.* of the filtered juice, mixed with 10*cc.* of alcohol, yield a clear liquid, the whole mass is strained, expressed, and filtered.

If only small quantities of fluid are to be fermented at a time, it is best to do this in a cask, since all extraneous matters are thereby excluded and the end of the fermentation can be exactly determined. For this purpose, a suitable cask is placed end up, and a hole two and three-quarters inches in diameter, bored in the upper bottom. Into this is placed a wooden bung, packed with rubber at the edge, and into the bung is bored another hole, carrying a rubber-stopper and a glass-tube bent twice at right angles, the outer leg of which dips into a bottle of water standing on the cask. The cask having been filled to two-thirds or three-fourths of its height with the fruit-pulp or juice (mixed with two per cent of sugar and kept at a temperature of 20° to 25° C.), the bung is inserted and the fermentation is allowed to proceed. As a consequence, there will be carbonic acid gas given off, which will bubble through the water into which the glass-tube dips. When no more gas bubbles are perceived the fermentation is concluded.

The properly fermented juice should be transferred to a cool place for about two days, then decanted and filtered—care being taken that the fine sediment be not transferred to the filter, as it would clog the latter. The filtering-paper must be of loose texture, and must be well wetted before use. [In our experience, care should be taken not to let the filter-paper rest upon the sides of the funnel. It should be plaited, the sides of the funnel should be lined with a moderately thick layer of clean tow, the plaited filter put in and then wetted. If this is done, it will let the liquid pass continuously at a very fair rate.] If the filtration is difficult, Marquardt recommends to add a little skimmed milk and to shake thoroughly. The acid present in the juice coagulates the casein, which thereby envelops suspended matters and clarifies the liquid. Or paper-pulp, that is, filtering-paper cut and pounded with water, may be used for this purpose.

No. 1,237.—**Automatic Water Still.**

Numerous correspondents have inquired the address of the maker of the automatic water still described in our January number. It is W. H. Herrick, Elizabethtown, New York.

No. 1,238.—**Pasting Labels on Tin.** (J. H. S. Galway, New York).

Make a paste by soaking gum tragacanth in water enough to cover it, leaving abundance of room in the bottle for the gum to swell, which it will do to a surprising degree, stir it to break up lumps and while doing so add a few drops of carbolic acid or oil of cloves to prevent it becoming rancid.

Apply to the labels with an ordinary bristle paste-brush and you will have no trouble in securing good adhesion of the labels to the tin.

No. 1,239.—**Hippurate of Sodium** (Dr. F. A. P.).

This salt has lately been recommended for the purpose of aiding the elimination, from the system, of an excess of uric acid. According to Dr. Garrod, the addition of hippurate of sodium to a blood serum which shows the presence of a urate soon removes the latter from it.

Peter Boa, in a paper read before the North British Branch of the Pharm. Society, on December 19th, stated that this new salt would be likely to be prescribed only in powder or in mixture.

When prescribed in powder, it may be dispensed in paper, as it keeps well.

If wanted in mixture, it is somewhat difficult to disguise its saline taste. The most agreeable combinations which the author could devise were obtained by means of syrup and peppermint water, or glycerin and cinnamon water. The following combinations are quoted as examples:

1. Sodii Hippuratis.....gr. 80
   Lithii Carbonatis.....gr. 24
   Glycerini.....f ʒ 4
   Aquæ Cinnamomi, ad..f ʒ 8
   Dose: 1 fluid ounce.
2. Sodii Hippuratis.....ʒ 2
   Potassii Citratis.....ʒ 3
   Syrupi.....f ʒ 6
   Aquæ Menthæ Pip., ad f ʒ 6
   Dose: A tablespoonful.

According to Mr. Boa, the addition of an alkaline carbonate or citrate, as given in the above formulæ, is desirable, so as to imitate the condition of

the renal excretion of the herbivora, which is alkaline, that of man being usually acid.

No. 1,240.—**Iodide of Lead** (Mr. H. C.).

C. H. Maisch points out (in *Am. Jour. Pharm.*, Feb., 1884) that the test given under *Plumbi Iodidum*, in the U. S. Ph., 1880—to rub 1 part of the salt with 2 parts of chloride of ammonium and 2 parts of water, whereupon a colorless liquid should result—is not worded correctly. The test should read as follows:

"On triturating 1 part of the salt (lead iodide) with 2 parts of chloride of ammonium in a porcelain mortar, and adding 2 parts of water, the mixture should soon change to a white color, and, when heated, should dissolve without residue."

The original draft of the test, while in manuscript, read: "On triturating 1 part of the salt with 2 parts of chloride of ammonium in a porcelain mortar, and adding 2 parts of *boiling* water, a colorless liquid should result." The word "boiling" was accidentally left out; but, even then, the test will not always work well, since the cold mortar will chill off the boiling water sufficiently to prevent its dissolving the salts completely.

It will be preferable to word the test as Mr. Maisch suggests.

No. 1,241.—**Effervescent Citrate of Iron** (E. J. M. & Co.).

We have had no personal experience in making this preparation; but, from the authorities at our command, we select the following three formulæ, which are said to produce satisfactory products:

1. Dried Sulphate of Iron 5 parts
   Bicarbonate of Sodium 30 "
   Carbonate of Magnesium ..... 20 "
   Citric Acid ..... 20 "
   Tartaric Acid ..... 20 "

Mix them intimately, and heat the mixture on a water-bath, under constant stirring, until it forms a granular mass which is to be passed through a sieve.

2. Pyrophosphate of Iron (U. S., 1880) ..... 50 parts
   Bicarbonate of Sodium 80 "
   Citric Acid ..... 30 "
   Tartaric Acid ..... 35 "
   Carbonate of Magnesium ..... 5 "

Mix the iron salt with 20 parts of bicarbonate of sodium, moisten the mixture with a very small quantity of water, dry it in a lukewarm place, and reduce it to powder. Then mix it with the remainder of the bicarbonate of sodium and the other substances, moisten it with a little alcohol, and granulate it in the usual manner.

(Both of the above after Hager.)

	Parts.
3. Pyrophosphate of Iron	30
Bicarbonate of Sodium	130
Tartaric Acid	100
Sugar	50

Mix the iron salt with 30 parts of bicarbonate of sodium, moisten the mixture with a little alcohol, dry it at a gentle heat, and powder it. Then add the remainder of the bicarbonate of sodium and the other substances, moisten with a little alcohol, and granulate in the usual manner. (E. Schmidt.)

No. 1,242.—**Text-Book on Practical Pharmacy** (J. H.).

Parrish's treatise, a new edition of which, edited by Wiegand and published in Philadelphia, is the best work for your purpose. It costs $5.00 in muslin, and $6.00 in leather, which is better for a work apt to be used so much, and can be had through any bookseller.

No. 1,243.—**Cement for Pestle Handles** (H. D. K.).

A commonly used cement for this purpose is a mixture of resin and wax, varying in proportions from about six parts of the former and two parts of the latter. A much more durable cement, however, may be made by means of glue, to which a little tannic acid has been added. The best way of proceeding is as follows:

Clean the inside of the pestle and the end of the handle thoroughly. Then fill the hollow handle *full* of water, hold it over an empty dish, and insert the handle so as to fit the pestle nicely. The displaced water which is caught in the capsule indicates the volume to be occupied by the cement. The object is to be able to adjust the proportion of tannin to the amount of glue used. Now heat the pestle in hot water, take it out and drain it, and, while it is still hot, pour into it twice as much hot, melted glue, as the volume previously ascertained requires. For every fluid-ounce of hot glue add two fluid drachms of glycerite of tannic acid (one in two) which may be made a little more fluid by adding some drops of hot water. Quickly stir the mixture with a stiff stirrer, and then immediately insert the handle, made moist and warm with hot water. Press it in tightly, wipe off the excess of the glue-mixture, and set the pestle aside for some days, or longer, if possible, handle down, so that it may become firmly united.

A mixture of resin, asphalt, and wax, about three parts each of the former and one of the latter, though other proportions may answer equally well, has also been recommended for the same purpose. We have used it years ago with good success.

No. 1,244.—**Pharmacy Boards in Australia** (C. H. N.).

The name and address of the Secretary of the Pharmacy Board for Victoria is Mr. Harry Shillinglaw, Mutual Providence Buildings, Collins street, West, Melbourne, Australia.

This gentleman will be able to reply more fully and correctly to your questions than we would be able to do.

No. 1,245.—**To Cover the Odor of Tar** (L. Z.).

Various aromatic substances may be used to disguise the odor of tar, but most of them will lose their aroma before the odor of the tar has disappeared. Any of the more powerful essential oils, which are not of themselves disagreeable, may be added to the tar in sufficient quantity. Probably the best agent is the artificial oil of bitter almonds—oil of mirbane or nitrobenzol—which is more penetrating and persistent than any other. The odor of tonka, imparted by means of cumarin, may also be found agreeable.

No. 1,246.—**Syrup of Senega.**

One of our subscribers directs attention to the formula for making syrup of senega of the U. S. Ph. of 1880. The directions require that 160 parts of fluid extract of senega be mixed with 250 parts of water, and afterwards with 4 parts of water of ammonia, making altogether 414 parts. The mixture is to be set aside for a few hours, then to be filtered through paper, and enough water to be passed through the filter to make the filtrate weigh 400 parts.

Our correspondent says: "Unless there is considerable loss by filtration, the product will weigh about 410 parts."

We had noticed this point before, and think it would have been better to lower the amount of water to 235 parts. Nevertheless, we have not noticed that the excess over 400 amounted to as much as 10 parts, there being usually enough matter retained by the filter to make the product about 400. At all events, it will be but seldom necessary to wash the filter with water so as to obtain the quantity directed by the Pharmacopœia.

No. 1,247.—**Beef-Tea** (U. S.).

The proper way to make beef-tea is, of course, to start from fresh beef, and boil this, if possible, under pressure, so as to extract all the soluble constituents. As our correspondent is in a position where he is for a good portion of the year remote from sources of supply, and, though having plenty of canned meats, yet cannot obtain fresh beef directly from the butcher, he desires us to give him a formula for making beef-tea from the extract.

Now, the commercial extract of beef does not contain all the constituents of beef; neither does beef-tea made from fresh beef. Yet the latter contains a good deal more of them than that made from the extract. Extract of beef would not keep at all if the albuminoids, fat, and gelatin had not been almost entirely removed. The extract is, therefore, not so much a nourishing as a stimulating substance, and, if it were the only food administered or taken, it would not be able to sustain life.

It will not be necessary, under ordinary circumstances, to combine the extract of beef with enough of the three previously removed ingredients to restore the original proportion of the latter. As a rule, it will be more convenient, as well as acceptable to the patient, to receive the missing constituents in some other form.

As a basis for good-beef tea, in which gelatin is introduced more as a culinary than as a physiological addition, the following formula may be used:

Extract of beef ..... 1 to 1½ oz.
Gelatin shreds ..... 1 "
Salt,
Pepper,
Lemon peel, fresh, each,
according to taste.
Water, enough to make ½ gallon.

Soak the gelatin in about one pint of cold water; when soft, add it to the remainder of the water, and heat to boiling. Then add the extract of beef, dissolve it by stirring, remove the heat, and add the spices.

The cost of this beef-tea, calculated on the basis of three ounces of extract of beef to the gallon, amounts to about forty-five cents.

No. 1,248.—**Colors for Show-Bottles.**

This is one of the standing and ever-recurring queries received by us and our editorial confrères. We will answer it here, and shall refer future inquirers to this number.

In preparing colored solutions for show-bottles, enough should be made at one time to fill the globe completely, and to have some surplus with which to refill the globe from time to time. Mere addition of water to a colored solution which has lost some water by evaporation, often impairs the depth of color and brilliancy. Each solution should be filtered very carefully so as to be perfectly clear. If possible, the stock should be made in winter, and enough alcohol (or glycerin) added to each to prevent the solution from freezing at any low temperature likely to affect the globe. From 2 to 3 pints of alcohol are usually required for each gallon of liquid.

Aniline colors of different hues may be used, though they are more or less fugitive, and have to be more frequently renewed than others. A very faint fluorescent solution, with a magnificent greenish-yellow fluorescence by reflected, and a reddish tint by transmitted light, is produced by adding a few grains of fluoresceine to water containing a little ammonia. The mistake is frequently made of having the colors too deep. Pale tints

are as a rule more brilliant than the deeper ones.

Blue.—1. Dissolve 4 oz. of sulphate of copper in 2 pints of water containing 1 oz. of sulphuric acid, and filter.

2. Dissolve Prussion blue in hydrochloric, or in solution of oxalic acid; add water until the proper shade is produced, and filter.

3. Dissolve ¼ oz. sulphate of copper in 4 pints of water, and add to it enough water of ammonia to redissolve the precipitate first formed. Then dilute more, if desired. This is not very stable.

Violet.—Dissolve 1 oz. of nitrate of cobalt in 2 quarts of a saturated solution of carbonate of ammonium. After thorough shaking, add enough ammonio-sulphate of copper to produce the proper tint. Filter.

Red.—1. Dissolve carmine in water of ammonia and dilute with water to the desired shade. About ½ drachm of carmine will be required for 1 quart.

2. Dissolve 1 drachm of carbonate of cobalt in hydrochloric acid, add enough carbonate of ammonium to dissolve the precipitate first formed, and dilute to the proper volume.

3. Add a little sulphocyanide of ammonium or potassium to a very dilute solution of a ferric salt.

Green.—1. Dissolve 4 oz. of sulphate of copper in 2 pints of water, then add sufficient bichromate of potassium to render the liquid green (about 5 drachms).

2. Dissolve 1 oz. of metallic nickel in nitric acid diluted with twice its weight of water, then add water to make 1 gallon, and filter.

3. Dissolve copper in nitromuriatic acid, and dilute to the proper volume.

4. Dissolve 4 oz. of sulphate of copper and 8 oz. of chloride of sodium in 2 pints of water, and filter.

5. Dissolve ½ oz. of subacetate of copper in 2 oz. of acetic acid, and dilute with water. A little ammonia may be added.

6. Dissolve 4 oz. of sulphate of copper in 2 pints of water, and add 6 oz. of nitric acid. This looks bluish-green by reflected or daylight, and fine green by transmitted light. Filter through glass-wool.

Amber.—Digest 1 part of dragon's blood, in coarse powder, with 4 parts of sulphuric acid. When dissolved, dilute with pure water to the desired tint, and filter.

Orange-red.—Dissolve bichromate of potassium in water, and add, for every pound of the salt, 4 oz. of sulphuric acid. Filter through absorbent cotton.

Yellow.—1. Use a solution of picric acid in water. The acid requires 150 parts of the latter for solution at 15° C. (59° F.).

2. Dissolve chromate or bichromate of potassium in distilled water, and filter. Dilute to the desired tint.

Amethystine.—Dissolve 5 (or more) grains of salicylate of sodium in 1 gallon of water. Then add a few drops of solution of chloride of iron (enough to produce the desired tint), and add a few drops of hydrochloric acid.

No. 1,249.—**"Salts of Bark"** (J. Bros.).

Our correspondent received a number of recipes in which the term "salts of bark" occurs. He desires to know whether this has a special significance or is simply an abstract term for the numerous salts of cinchona.

We believe that the writer of the receipts meant that term to denote any single alkaloidal salt of cinchona or any desired combination of them, the formulæ being probably adapted to the use of any one or more of them. For instance, you may decide to use sulphate of quinine alone or a mixture of sulphate of quinine and sulphate of cinchonine, or a mixture of the sulphates of quinine, quinidine, cinchonine, and cinchonidine, etc., etc.

No. 1,250.—**Syrup of Dover's Powder** (O. L. H.).

There is no definite formula recognized for this preparation. If your physician insists on having such a syrup prepared, it may easily be accomplished, for instance, in the following manner:

Fluid ext. of ipecac,
128 ♏, or..... 1 part
Deodorized tinct. of
opium, 1,500 ♏, or..10 parts
Syrup, enough to
make 1 pint, or.....80 "

Evaporate the deodorized tincture of opium until it measures about 300 minims (or weighs about 2 parts); then mix it with the fluid extract of ipecac and the syrup.

Each teaspoonful corresponds to 1 grain each of opium and of ipecac, and is, therefore, equivalent to 10 grains of Dover's powder.

No. 1,251.—**Liquor Carbonis Detergens** (L. Z. C.).

This is a preparation made by W. V. Wright & Co., of London (Southwark street). It is an "alcoholic solution of coal-tar, suitably diluted," to quote from the report of Dr. Jamieson. Its exact composition is unknown, but it has nevertheless been used by dermatologists in England—another instance of medical empiricism.

In the London Hospital there is used a *Liquor Bituminis Compositus* which is stated by Martindale to have similar properties to the above-mentioned nostrum.

It is prepared thus:

Coal tar.....1 oz.
Boiling water.....2 oz.

Shake well and add

Tincture of quillaia (1 in 5), 1 pint; agitate occasionally in a closed vessel and, after 12 hours, filter.

No. 1,252.—**Syrup of Lactophosphate of Calcium** (A. T. G.).

This correspondent says: "In your last number (p. 28) I read a very interesting article on Syrup of Lactophosphate of Calcium; but you fail to state in what particular the advantage of your method lies. Your formula makes the syrup cost about 80 cents per gallon more, and, though there is a saving in time in not having to wash the precipitate as in the pharmacopœial process, yet the result is as impure a product as if you took the commercial phosphate of lime and dissolved it directly in the lactic acid, in the U. S. P., process, instead of reprecipitating it."

Our correspondent is mistaken in the latter part of his letter, inasmuch as the product obtained by following the process given in our February number *cannot* be as impure as that obtained by starting from commercial phosphate of calcium. In the second place, our correspondent errs in calling that process *ours*, since it is devised by Mr. R. Rother, whose name ought to be known to him as that of a scientific pharmacist. The advantage of Mr. Rother's formula, or of our own (in which lactate of calcium is used) lies in the readiness with which the syrup can be prepared, while the officinal process requires a considerable time. This shortening of time and labor alone is equivalent to some money value, and our correspondent should not object to an increase in price of 80 cents *per gallon*, which would be only 10 cents per pint. We are sure that by following the formula he will save more than this excess for some other useful purpose.

No. 1,253.—**Oleomargarine** (L. G. Sh.).

Besides extensive articles which have appeared, from time to time, in scientific journals, reports of Health Boards, British Parliamentary papers, and some rather superficial chapters on the subject in a few chemical or analytical text books, the only work we know of which would likely cover the ground you want is the following:

Victor Lang, **Die Fabrikation der Kunstbutter, Sparbutter, und Butterine.** 8vo, Wien (Hartleben), 1878.

No. 1,254.—**Zamia Integrifolia as an Emulsifying Agent** (A. E. A.).

Referring to an article on advertising page 39 of our January number, relating to emulsions of petroleum as an insecticide, this correspondent wishes to know: (1) Where the root of the plant can be obtained. (2) How it may be used. (3) Who makes a machine for emulsifying on a large scale. (4) Can *Laminaria saccharata* (said to be found on Long Island) be used for this purpose? (5) Of whom can it be obtained?

(1) We know of no one who has the root for sale, but presume that Prof. C. V. Riley, of Washington, the author of the paper referred to, could inform you. Dr. J. C. Neal, of Archer, Fla., also referred to in the paper as having used this emulsion, should also know something about it. (2) The mode of using it appears to be pretty well described in the paper referred to, and we have no further information on the subject. (3) The "Sparrow Mixer" is recommended as a serviceable machine for making quantities of emulsions, but an ordinary churn would probably answer every purpose. (4) We are unable to give you any information respecting *Laminaria saccharata* either as regards its value as an emulsifier or the source whence it may be obtained.

No. 1,255.—**Emulsifying Mineral Oils** (A. E. A.).

To form emulsions with mineral oils, we know of no substance more efficacious than the article called "Polysolve," mentioned in our February number. This most remarkable compound, which is destined to play an important rôle in medicine, technology, and other arts, can dissolve a very large proportion of petroleum, and the solution thus produced may afterwards be diluted with water, whereby an emulsion is produced, from which the petroleum separates only very slowly. This diluted solution then may be used for sprinkling or squirting upon plants to kill injurious insects. We, for our part, should prefer the latter method to any other.

We have made various experiments with the polysolve, and the more we study it the more we have been surprised. It can be purchased at very moderate prices from Dr. A. Mueller-Jacobs, Mount Vernon, N. Y.

No. 1,256.—**Eureka Catarrh Remedy Specific** (J. E.).

Can any of our readers inform us of the nature of this remedy prepared by Dr. C. Hoyt, of Sharon, Pa.?

No. 1,257.—**Manufacturers of Chloral** (D.).

One of our subscribers desires the addresses of the manufacturers of chloral hydrate in this country. We will forward any answers directed to our care.

ANSWERS IN EXCHANGES.

Indiana Pharmacist.

Bismuth in Pills.—"Subnitrate of bismuth is best given in pills. As bismuth is almost insoluble, it is not well to give it in fluids."

[On the contrary, owing to the fact that it is most commonly used for its direct effect upon the mucous membrane, it is far preferable to give it suspended in some mixture of the same or a greater specific gravity, or in the form of a powder, to be poured on the tongue, and to be rinsed down with a swallow of water. Of all the forms for its administration, the pillular is probably the least desirable, except in so far as it facilitates its ingestion.]

BIBLIOGRAPHY.

THE EXTRA PHARMACOPŒIA OF UNOFFICINAL DRUGS AND CHEMICAL AND PHARMACEUTICAL PREPARATIONS. By WILLIAM MARTINDALE, F.C.S. With References to their Use abstracted from the Medical Journals, and a Therapeutic Index of Diseases and Symptoms. By W. WYNN WESTCOTT, M.B. Lond. Second Edition. London: H. K. Lewis, 136 Gower St., W. C.: 1884, pp. 330.

SEVENTEEN years having elapsed since the publication of the latest edition of the British Pharmacopœia, the need for supplementary works has become quite necessary and the extent to which this particular work meets the demand was shown by the sale of the entire first edition within a few weeks of its appearance. In form it is capable of being carried in the pocket, it has limp morocco covers lettered on the side, so as to adapt it for the office table and it contains, in a judiciously condensed form, a great deal of information from recent authorities concerning drugs and preparations which are officinal in Great Britain, Germany, and the United States, as well as many which are as yet unofficinal or to be found in special pharmacopœias, like those of some of the London hospitals.

Bearing in mind the relations between British weights and measures and our own, the work will be found valuable for reference for physicians, since it contains much information about new remedies which must otherwise be searched for in medical journals and pamphlets.

EPITOME OF SKIN DISEASES, with Formulæ, for Students and Practitioners. By the late TILBURY FOX, M.D., F.R.C.P., and T. COLCOTT FOX, B.A., M.B. Third American Edition. Revised and with Additions by T. COLCOTT FOX, B.A., etc. Philadelphia: Henry C. Lea's Son & Co.: 1883, pp. 240, 8vo. $1.25.

WE have already expressed our satisfaction with previous editions of this work. In the one now presented the publisher announces the insertion of the classification of dermal affections adopted by the American Dermatological Association, and the editor announces several changes in the text to bring the work up to present requirements.

RETAIL DRUGGISTS' DIARY AND WANT BOOK. Detroit: Frederick Stearns & Co., 1884.

THIS is somewhat in the style of the diary of the *Chemist and Druggist*, but better suited to the retail trade of this continent. According to the publisher's summary of its contents, it contains sixteen pages of important tables and information, scientific and political, fifty-two pages of diary, with space for each day of the year, and twelve pages of "want book" for needs, purchases, etc. The *true inwardness* of the book, however, lies in the ninety-four pages of priced catalogue, which is profusely illustrated and contains over fourteen thousand items of things that every well-regulated pharmacist should know about. A perusal of some of these pages will show how the "cut-rate" question may be settled in a way that will prove eminently satisfactory to every retail dealer.

INDEX TO THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Volumes I. to XXXIII. Prepared by WILLIAM B. ATKINSON, M.D., Permanent Secretary. Philadelphia: 1883, pp. 130, 8vo.

THE compiler remarks that, the Association having ceased to publish its annual transactions in a separate volume, it has been deemed a fitting opportunity to issue a general index of the thirty-three volumes which have been published since the foundation of the Association in 1849.

Examination of the contents shows many errors which are to be traced to a faulty system. It is evidently the work of one who has not the experience desirable in such an undertaking. To illustrate, we quote the following:

"Literature of children's diseases, xxxii., 351."

"Diseases of children, works on, i., 282."

"Children, disease of, works on, i., 282; xviii., 393; xxxii., 351."

"Change in constitution, as to representation by schools and hospitals, xxvi., 72."

"Criminal abortion," has thirteen references, while

"Abortion, criminal," has but five.

"Danish authors on cancer operations, vi., 274," has no corresponding cross-reference under "cancer" or "operations."

And so on through the book, one finds numerous instances of that kind of indexing which is said to have occurred in a volume of law reports in which, under the title "Great Mind," reference was made to an opinion by a learned judge, who remarked, on the basis of certain evidence submitted, that he had a *great mind* to decide—so and so.

YEAR BOOK OF PHARMACY. Comprising Abstracts of Papers Relating to Pharmacy, Materia Medica, and Chemistry. Contributed to British and Foreign Journals from July 1st, 1882, to June 30th, 1883, with the Transactions of the British Pharmaceutical Conference at the Twentieth Annual Meeting Held at Southport, September, 1883. London: J. and A. Churchill, 1883, pp. 614, 8vo.

THIS is always a welcome volume. Not only does it contain the series of valuable papers and discussions of the the conference, but the abstracts are carefully made, and comprise most of the valuable papers which have appeared in pharmaceutical periodicals. The volume should be in all reference libraries intended for pharmaceutical students and practitioners.

A MANUAL OF PRACTICAL HYGIENE. By EDMUND A. PARKES, M.D., F.R.S. Edited by F. S. B. FRANÇOIS CHAUMONT, M.D., F.R.S. Sixth Edition, with an Appendix Giving the American Practice in Matters Relating to Hygiene. Prepared by and under the supervision of Frederick N. Owen. Vol. II. New York: William Wood & Co., 1883, pp. 556, 8vo.

THIS is the November number of the series for 1883 of Wood's Library of Standard Medical Authors. In its original shape it is already so well known and highly appreciated as to require no criticism. The American additions consist of an introductory chapter followed by others on Water, The Character and Distribution of American Soils, Climatology and Meteorology, Ventilation and Warming, Removal of House Waste, Food Adulteration, Disinfection and Deodorization, Vital Statistics, and Hints to Sanitary Inspectors, the whole comprising over one hundred and sixty pages of the volume.

THE FIELD OF DISEASE, A BOOK OF PREVENTIVE MEDICINE. By BENJAMIN WARD RICHARDSON, M.D., LL.D., F.R.S., etc. Philadelphia: Henry C. Lea's Son & Co., 1884; pp. 737. 8vo.

ALTHOUGH intended, primarily, for non-professional readers, this work contains so many matters of interest and importance to medical men which are not to be found in any single work that the publishers have wisely issued it in a form which especially adapts it for professional readers, as well as the public.

Although much of the matter contained in the volume is too brief in its scope to answer the needs of a physician, the work might be carefully studied with much profit not only by medical students in the early period of their studies, and before entering upon the study of advanced topics, but many physicians, as well, would gain from it a comprehensive view of the nature of disease and its prevention, which would prove of great service to them in practice. In the portion relating to acquired diseases from inorganic and organic poisons especially, will be found many things of interest to the pharmacist, as, for example, those caused by arsenic, cadmium, lead, mercury, bichromate and cyanide of potassium, salts of silver, zinc, chloride of sodium, copper, ammonia gas, carbon bisulphide, carbonic oxide, chlorine, smoke fumes of copper, and hydrochloric and nitric acid, phosphorus, resin, sulphurous acid gas, sulphuretted hydrogen, absinthe, alcohol, cannabis indica, chloral, cloroform, ether, nitrous oxide, opium, tobacco, tea, coffee, cocculus indicus, aniline, nitro-benzol, paraffin, soot, turpentine, and mixed vapors and gases.

THE PHYSICIAN'S POCKET DAY-BOOK. Designed by C. HENRI LEONARD, M.A., M.D. Detroit, Mich. $1.00.

THERE are several features of this pocket day-book that are peculiar to it and render it better adapted for use as an account book than any other form of pocket book with which we are acquainted. Used in connection with the physician's ledger furnished by the same author, it reduces the labor and details of medical book-keeping to the smallest possible degree consistent with accurate accounts.

FARMAKOGNOZYIA. Podrecznik dla lekarzy-powiatowych, aptékarzy i sluchaczy, nauk farmaceutyncznych, etc. ze DR. MIECZYSLAW DUNIN WASOWICZ.

[Pharmacognosy. By Dr. W. Dunin Wasowicz.—In Polish.]

THE first two numbers of this new work on pharmacognosy which have reached us contain, 1, the drugs derived from the animal kingdom; 2, those derived from cryptogamic plants; 3, a portion of the phænogamic drugs, beginning with the seeds.

The descriptions are full and exact; the chapters on chemical constitution and on the history of each drug have been drawn up with the aid of the best and most recent literature and altogether the work promises to be a very meritorious one.

QUELQUES NOUVEAUX ESSAIS DES BEURRES FONDUS. Par le Dr. Joseph Zanni, .Membre du Conseil Médical Civil de Constantinople. 8vo, pp. 21. Constantinople, 1883.

THIS pamphlet gives the results of of the author's examination of so-called "Siberian" melted butter supplied to the Ottoman army. He finds it adulterated with mutton tallow, and vegetable (probably cotton and sunflower) oils, and rancid from the presence of butyric acid.

A TREATISE ON PHARMACY, etc., etc. By EDWARD PARRISH. Fifth Edition, enlarged and thoroughly revised by Thomas S. Wiegand. With 256 illustrations. 8vo. Philadelphia: H. C. Lea's Son & Co., 1884.

IN the case of the present work, it is altogether superfluous to quote the long title. Every reader of this journal knows it by the short name: "Parrish's Pharmacy," and will be glad to learn that a new edition is now available, based on the new U. S. Pharmacopœia, and thoroughly revised. We have found this edition a great improvement on the last, inasmuch as we find it free from numerous errors which had crept into the former. It should be in the hands of every student and practical pharmacist.

AN ANSWER TO "A PROTEST AGAINST THE USE OF THE METRIC SYSTEM IN PRESCRIBING." By D. Webster Prentiss, M.D., Washington, D. C. (Reprint from The Medical News, Nov. 24th, 1883.)

DER FORENSISCH-CHEMISCHE NACHWEIS DES PIKROTOXINS IN THIERISCHEN FLUESSIGKEITEN UND GEWEBEN. (Inaug.-Dissert). ALEXANDER CHLOPINSKY. 8vo, Dorpat, 1883. (From Prof. Dragendorff.)

ERNEUERTE UNTERSUCHUNGEN UEBER ZUSAMMENSETZUNG UND SPALTUNGSPRODUCTE DES ERICOLINS. DIE LEDITANNSÆURE DIE GALLUTANNSÆURE UND DAS PINIPIKRIN. (Inaug.-Dissert.) RICHARD THAL. 8vo, Dorpat 1883. (From Prof. Dragendorff.)

UEBER VANADINSCHWEFELSÆURE, ein neues Reagens auf Alkaloide. Von Mag. Pharm. K. F. MANDELIN. 8vo. St. Petersburg, 1883. (From the author.)

RECENT STUDIES ON THE CONSTITUTION OF THE ALKALOIDS. By SAMUEL P. SADTLER, Ph.D., Introductory Lecture, Course 1883-84, Phila. Coll. Pharm. 8vo, Phila., 1883. (Reprinted from *Am. Journ. Pharm.*)

PROCEEDINGS of the Fourth Annual Meeting of the Illinois Pharmaceutical Association held at Springfield, Ill., Oct. 9th-10th, 1883.

MISSIONARY WORK AND ITS EFFECTS UPON THE WORKER. By WALLACE TAYLOR, M.D. (of Osaka, Japan), 8vo, pp. 18. Yokohama.

THE VEGETABLE MATERIA MEDICA OF WESTERN INDIA. By W. DYMOCK. Parts III and IV. (See NEW REM. 1883, p. 318).

PART V. is soon expected to appear. We shall not postpone any further comments on this valuable work until that time.

NEW PATENTS.

[Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.]

290,749. *Carbonating Apparatus.*—William J. Cunningham, Philadelphia, Pa.

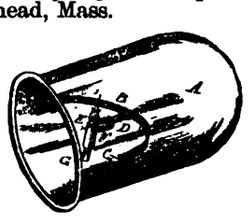
290,784. *Bleaching Oil.*—Henry McManus, Brooklyn, N. Y. Assignor to himself, Robert McManus, and William W. Eastman, same place.

290,828. *Faucet for Soda Fountains and Other Articles.*—S. M. Way, Hempstead, N. Y.

291,163. *Manufacture of Ferro-Cyanides.*—Georges de Vigne, Lille, France.

291,196. *Inhaler.*—William A. Johnston, Clifton, and Arthur W. Browne, Pleasant Plains, N. Y., assignors to the S. S. White Dental Manufacturing Co., Philadelphia, Pa.

291,364. *Syringe.*—Philip B. Laskey, Marblehead, Mass.



291,388.

291,388. *Cupping-Glass.* — Charles L. Myers, New Hamburg, N. Y. *Claim*, the combination with the cupping-glass of the pivotal taper-holder, adjustable to the varied positions in the application of the glass.

291,637. *Glass Bottle-Stopper.*—John Story, Castle Shannon, Pa. The combination of a bottle having the inner

291,637.

edge of the upper end of the neck cut away so as to form a cavity, *i*, in combination with the stopper having a flange which projects outward over the neck of the bottle, and which stopper is provided with a cavity, *a*, and the conduits, *b*, which communicate with the cavity *i*, which is formed by the cut-away edge of the bottle.

291,638.

291,638. *Bottle and Stopper.*—John Story, Castle Shannon, Pa. The combination of a bottle having the lip of its neck inclined and flared upwardly and outwardly, with the stopper provided with the grooved flange, the shape of the groove being made to correspond to the shape of the lip and the different parts of the neck, and the stopper being ground so as to form a tight joint.

291,690. *Syringe.*—Joseph H. Clarke, Springfield, Ohio.

291,714. *Medical Compound.*—Daniel A. Green, Scott, N. Y. Consisting of mutton-tallow, honey, pine-pitch, beeswax, linseed oil, saltpetre, borax, alum, salt, hen's oil, skunk oil, Castile soap, laudanum, spirits of turpentine, oil of origanum, ether, and oil of sassafras.

291,751. *Medical Compound.*—Nettie A. Lauer, Carneiro, Kans. Consisting of alcohol, oil of peppermint, oil of sassafras, oil of spearmint, oil of origanum, oil of hemlock, oil of turpentine, oil of capsicum, and gum camphor.

291,821. *Process of Concentrating Sulphuric Acid.*—Moses A. Wald, Camden, N. J.

291,833. *Still.*—Peter N. Bardo, Newport, Ky., assignor to the Bourbon Copper and Brass Works, Cincinnati, Ohio.

291,920. *Stopper Lock for Bottles.*—James D. Mattison, New York, N. Y.

291,922. *Process of Preparing Medicated Court Plaster.*—Charles L. Morey, Comac, N. Y. Consists of removing from old gold-beaters' skins, by rubbing, all particles of gold adhering thereto, then beating the skins between paper, then subjecting the skins to pressure between sheets of paper moistened with a medicinal preparation to coat the skins on both sides, then drying, and finally flattening the same by pressure.

291,590. *Veterinary Medicine-Spoon.*—Jacques R. Stettheimer and Theodore Leis, Rochester, N. Y.

292,054. *Apparatus for Making Sulphuric Acid.*—John Samuel Rigby Beaufort, assignor of one-half to Fred. Brotherhood, Charleston, S. C.

292,085. *Bellows Attachment for Insect Powder, etc.*—Thomas Woodason, Chicago, Ill.

10,437 (*Reissue*). *Machine for Cutting off Gelatin Capsules.*—Frederick A. Hubel. Detroit, Mich.

292,255. *Salve.*—William Richardson, Buffalo, Mo. In a salve for the cure of piles, a compound formed of ooze of mullein leaves, 4 oz.; hog's lard, 4 oz.; gum camphor, ½ oz., and laudanum, 80 drops.

292,260. *Utilizing Waste Calcium Chloride and Sulphate.*—Conrad Semper, Philadelphia, Pa. The method of utilizing waste sulphate of calcium produced in the manufacture of acetic acid from acetate of lime, which consists in subjecting said product to a high temperature, as and for the purpose described.

293,381. *Syringe.* — George Abner Stiles, West Gardner, assignor to Warren Hill, Boston, Mass. An attachment for syringes, consisting of a skeleton frame for distending the vagina, provided with a suitable seat for the nozzle of the syringe, and a spring for clamping it thereto.

292,434. *Capsule Machine.*—Frederick A. Hubel, Detroit, Mich.

292,449. *Bottle-Stopper.* — Stephen P. M. Tasker, Philadelphia, Pa., assignor to Joseph R. Tasker, same place.

ASSOCIATION AND COLLEGE NOTES.

New York. — The druggists of Broome Co. organized a County Pharmaceutical Association at Binghamton, on the 7th of February, with the following officers: *President*, C. Z. Otis; *Vice-President*, J. E. Brown; *Secretary*, W. M. Quirk; *Treasurer*, H. A. Smith; *Executive Committee*, J. Schnell, J. McDougall, E. Ostrum, N. Waldron, and F. Corbin.

At the annual meeting of the Kings County Pharmaceutical Society, held in Brooklyn on the 12th of February, the retiring President, Mr. Black, read a brief address, and various reports were presented.

The Secretary reported a gain of two and a loss of seven members during the year, leaving a membership of one hundred and fifty. Mr. W. P. De Forest had been elected to fill a vacancy in the Board of Pharmacy.

The Treasurer reported the receipt of $392.60 and an expenditure of $325.33 during the year, leaving a balance of $1,114.46 in the treasury.

The Committee on Canvassing for an Equalization of Prices reported that more than four-fifths of the druggists had signed the agreement.

The Trustees recommended, in view of a recent notice published by the manufacturers of vaseline, that the Society defend any suit brought against a member by these manufacturers or their representatives, to establish a test-case. The Trustees also recommended the appointment of a committee to confer with the authorities of the Long Island Hospital with a view to the organization of a College Pharmacy.

The Committee on Trade Interests, of which Mr. E. A. Sayre was chairman, reported at length, and chiefly in relation to the formation of a National Retail Druggists' Association and the evils of underselling.

The Committee on Legislation (W. P. De Forest, Chairman) reported favorably upon the prospect of the enactment of a State Pharmacy Law by the present Legislature. The bill offered last year failed to secure the Governor's approval owing to an omission. This year a clause had been introduced in the Committee on Public Health which would allow assistants to open stores on their own account. This had grown out of a misunderstanding in the legislative committee, but an explanation by the Committee of the Society had led to a promise that the additional clause would be withdrawn. The Committee advised an increase of the registration fee to $5.00 for all who apply for registration without examination.

The effect of the Penal Code, lately in force, upon the local pharmacy law was declared to be *nil*, and the opinion of counsel was submitted. The atten-

tion of the Society was directed to the desirability of repealing the revenue license so far as it relates to the sale of liquors in drug stores, and also to the need for a reduction of the present tax on alcohol.

The following officers and committees were chosen for the ensuing year: *President*, G. M. Baker; *Vice-Presidents*, L. D. Sheets (re-elected); L. T. Stevens; *Secretary* and *Treasurer*, C. R. Paddock (re-elected); *Assistant Secretary*, F. N. Bliss; *Censors*, Messrs. Black, P. Guignon, C. E. Day; *Trustees*, L. P. Perkins, L. E. Nicot, W. P. De Forest, W. M. Davis, L. E. Sayre. Fourteen delegates were appointed to attend the initial meeting of the New York Druggists' Union.

In compliance with a notice sent to the retail druggists of this city, a meeting was held in the College of Pharmacy on Thursday, February 14th, at 2.30 P.M., about two hundred and fifty pharmacists being present. The following constitution was adopted unanimously.

The object of this organization is to fraternally unite the pharmacists and druggists of the city for the protection and promotion of their mutual interests.

I. This organization shall be entitled "The New York Druggists' Union," and shall consist of honorary and active members.

II. 1. Any pharmacist or druggist, chemist or manufacturer, connected with the legitimate drug trade may become a member on receiving a two-thirds vote of those present, and by signing the Constitution and Articles of Agreement.

2. Application for membership must be made in writing at the meeting immediately preceding that at which the applicant is voted for.

3. Each member shall pay an annual due of one dollar, and the annual dues of this Union shall be fixed at one dollar.

4. Pharmacists, chemists, or other scientific men who distinguish themselves in the interests of our profession or Society, or who may be nominated by the Executive Committee, may be elected honorary members. They are not required to contribute to the funds, vote at any meeting, nor shall they be eligible to office.

5. Voting for members shall be by ballot, except in the case of honorary members, who may be elected *viva voce*.

III. 1. The officers of this Union shall consist of a President, three Vice-Presidents, a Secretary, a Treasurer, and an Executive Committee. The last shall consist of eleven members, who shall be elected annually, by ballot, at the regular annual meeting, a majority, only, of the members present being necessary to elect.

2. The President shall preside at all meetings, and shall call special meetings upon the written request of ten members.

3. The Vice-President shall assist the President, or preside in his absence, in the order of his election.

4. The Secretary shall keep a record of all meetings, attend to all correspondence, read all communications, and preserve all letters, papers, and documents.

5. The Treasurer shall receive all funds and disburse them under the direction of the President, keep a faithful account of the same and make a full report at the annual meeting.

6. The Executive Committee shall meet once in three months, or oftener if desirable, upon the call of the Chairman. It shall have charge of applications for membership, and the publication of such matters as the Union directs. It shall also have power to initiate such measures and grant such privileges to members as may appear necessary or desirable, from time to time, in order to protect ligitimate pharmacy against the encroachments of those who seek to overthrow it, and to transact all business not otherwise assigned. The Executive Committee shall also report all resolutions and decisions agreed to by them, to the President, who shall countersign such papers and transfer them to the Secretary for final action of the Union.

7. All officers shall serve until their successors are elected and installed.

IV. 1. At each annual meeting the President shall appoint the following Standing Committees, of each of which he shall be, *ex officio*, a member.

1. Committee of Trade Interests.
2. Committee of Legislation.
3. Committee of Pharmaceutical and Scientific Interests.
4. Committee of Arbitration.

2. The duty of the Committee of Trade Interests shall be: First, To prepare a uniform price-list of all proprietary articles to be submitted to the Union for adoption. Second, To assist manufacturers, proprietors, and wholesale druggists to arrest any existing demoralized condition of the drug-trade, and to consider all propositions and measures designed to suppress any ruinous opposition and cutting of profits, and also the selling and handling of medicines by tradesmen, and to give attention to such additional matters as may, in their judgment, be within their proper province, and report their action to the Union when called upon.

3. It shall be the duty of the Committee of Legislation to communicate with the N. Y. State Pharmaceutical Association, and others, as may be deemed best; to promote the enactment of a State pharmacy law, for the purpose of regulating the sale of drugs, poisons, and medicinal preparations, and confining the handling and sale of such articles exclusively to pharmacists and druggists.

4. The Committee of Pharmaceutical and Scientific Interests shall offer such suggestions as may tend to enlighten, instruct, and advance the interests of the profession.

5. It shall be the duty of the Committee of Arbitration to hear and act upon all complaints against any member of the Union; the accused to have the right to select two members of the Union to act with the Committee, which shall give both sides a fair hearing and decide the case upon its merits. An appeal from the decision of the Committee may, however, be taken to the Union at its next meeting, when a majority-vote of those present shall finally decide the case.

V. 1. Special Committees may be appointed by the President as occasion may require, but such Committees shall be limited by the scope of the resolutions under which they act.

VI. 1. Twenty-five members shall constitute a quorum.

VII. 1. The regular meetings of the New York Druggists' Union shall be held on the second Tuesday of each month at two and a half o'clock P.M.; the annual meeting at the same hour on the second Tuesday of February.

VIII. 1. ORDER OF BUSINESS.

1. Roll-call of officers and members.
2. Reading of minutes of previous meeting.
3. Reports of committees.
4. Reading of communications.
5. Admission of members.
6. Debate and action on all matters in consecutive order as presented by the Committees.
7. Unfinished business.
8. New and miscellaneous business.
9. Adjournment.

2. Cushing's Manual shall be the authority of the Union on parliamentary law.

IX. 1. If any changes or revision of the Constitution and Rules are deemed necessary, a special meeting shall be called, so that every point may be carefully weighed and debated, and no change shall be made, except by a vote of two-thirds of those present at the meeting so called.

The following Articles of Agreement were likewise adopted:

We, the undersigned pharmacists and druggists of New York, hereby agree and bind ourselves to abide by the Constitution, Rules and Resolutions of the New York Druggists' Union, as adopted at its first meeting, February 14th, 1884, and to adhere in good faith to the scale of prices on proprietary medicines and preparations which shall be adopted by said Union; and to insist that the business of selling such articles to the consumer belongs to pharmacists and druggists, and to them only.

We also agree and bind ourselves not to buy goods from any house which sells to a dealer who violates the aforesaid scale of prices. Neither will we buy from any house or firm, local or foreign, which, after having been notified, continues to sell to such dealer or dealers.

We further agree that we will not purchase goods of any wholesale druggist, dealer, or manufacturer, who supplies any dealer who is known to be underselling Union rates, or who supplies unrecognized druggists or tradespeople.

We further agree not to buy any article manufactured by parties who violate the afore-mentioned scale of rates, or any article or articles in the sale of which they are known to be interested; and, further, that we will do all in our power to discourage and prevent the sale of such articles.

We, the undersigned, also agree that we will not sell any merchant, pharmacist, or druggist any articles of which he is known to be cutting the prices.

It is further agreed, that, in case any of the signers of these Articles of Agreement shall violate the scale of prices adopted by the New York Druggists' Union, either directly or indirectly, such person shall, upon conviction, forfeit the sum of twenty-five dollars ($25), payable to the treasurer of the Union.

The following officers and committees were chosen: *President*, A. J. Ditman; *Vice-Presidents*, Paul Balluff, Ewen McIntyre, Rowland N. Hazzard; *Secretary*, George Inness; *Treasurer*, Gustav Balser; *Executive Committee*, Adolph Tscheppe, M. B. Cox, S. J. Bendiner, C. F. Jewett, J. S. Scofield, H. A. Cassebeer, H. Diedel, H. W. Atwood, J. M. Fisher, D. W. Seward, T. A. Speer; *Com. of Trade Interests*, J. N. Hegeman, E. Molwitz, B. W. Dyer, C. Kessler, J. Condie, B. Fairchild, J. Imgard, O. Kress, T. J. Macmahan, W. Massey; *Com. of Legislation*, J. N. Hegeman, G. Inness, E. L. Milhau, T. J. Macmahan, H. W. Atwood; *Com. of Pharmac. and Scient. Interests*, J. A. Caswell, S. J. Bendiner, T. H. Sayre, E. McIntyre, A. Tscheppe; *Com. of Arbitration*, E. L. Milhan, H. N. Fraser, F. Ehrmann, T. Ebering, M. Marguette, H. O'Neil, H. L. Metz, M. J. Breidenbach, J. King, Jr., D. Hays, C. E. Vetter, S. Nauheim, T. Starr, H. Schnied.

Addresses were made by Messrs. Baker, of the Kings County Pharmaceutical Society, Gellatly, Seabury, Royce, Breidenbach, King, and several others, and the objects of the Union and the methods to be pursued were discussed at considerable length. Letters were read from Mr. E. L. Schellentrager, the President of the Cleveland Pharmaceutical Association (which has had a local protective organization for four years), Mr. Henry Canning, of Boston, the President of the N. R. D. Association, and Mr. Edward A. Sayre, of Brooklyn, Chairman of the Executive Committee of the N. R. D. Association, and the meeting was

adjourned to meet at 2:30 P.M., on February 21st, at the College of Pharmacy.

At a meeting, held on the 21st of February, no business of importance was transacted, the time being chiefly occupied by remarks by Messrs. Robbins, Gellatly, Seabury, and others. The following was adopted:

Resolved, That we extend to Brooklyn, Philadelphia, Boston, and all other cities oppressed by underselling goods, firm and active co-operation, and to strengthen them in all matters that will tend to elevate and protect pharmacy, professionally and commercially.

About 150 additional names were added to the article of agreement, and the 28th of February, at 2.30 P.M., was decided upon for the next meeting.

Pennsylvania.—The Philadelphia College of Pharmacy has "*Resolved*, That the College requests the Board of Trustees, through its Committee on Instruction, to prepare and send to all the active members of the College a set of queries as to the desirableness of a preliminary examination on the part of students desiring to enter the College; as to what this preliminary examination should cover, and as to how it should be conducted, and on other matters connected with this subject."

Iowa.—An attempt on the part of a few persons is being made to secure a repeal of the pharmacy law of the State, to combat which the State Pharmaceutical Association has memorialized the members of the Legislature, showing the importance of the relation between the public and the profession of pharmacy and the benefit which has already followed the enactment of the law. The address, moreover, denies the charge that the Commission of Pharmacy, now existing, has failed to act for the best interest of the community.

Ohio.—The bill before the legislature to enact a State Pharmacy law appears so meet with general favor among both legislators and the public. The initial registration fee has been reduced from five to three dollars and a number of minor alterations have been made which tend to improve the construction of the instrument.

In a recent meeting of the Cincinnati College of Pharmacy the relations of graduates of the college to the proposed bill were discussed with much animation, some of the speakers thinking that the failure to exempt graduates of the school from examination for a license would be an injustice to them. Nevertheless the bill as it stands was formally approved, when two of the minority tendered their resignations a members of the College.

District of Columbia.—An association named "The Chemical Society of Washington" has lately been organized with Prof. Antisell as its President.

Connecticut.—The State Pharmaceutical Association was in session in New Haven on the 5th and 6th of February, over one hundred members and a large number of visitors being present. The following matters were referred to in the various reports and addresses:

The membership is 234, 4 being honorary.

During the preceding year, S. Noyes, of New Haven; J. Hodgson, of Rockville; and S. R. McNary, of Hartford, have died.

The pharmacy law recently enacted is working satisfactorily, and the Committee on Legislation have secured such action respecting the sale of alcoholic liquors that pharmacists will not require a liquor dealer's license.

There is a cash balance in the treasury of over $800.

The Committee on Queries experience some trouble in obtaining the co-operation of members in providing papers for presentation at the meetings, and it is suggested that members should hereafter accept one or more subjects from a list prepared by the committee, and relating to pharmacopœial and other preparations, and offer practical suggestions concerning them.

The Committee on Progress of Pharmacy remarked the increase of attention to pharmacopœial preparations and efforts to improve them.

The following resolution, after considerable discussion, failed of adoption: "*Resolved*, That the adoption of the metric system would be detrimental to our best interests as pharmacists and business men."

The President, Mr. E. S. Sykes, of Hartford, in the course of his very suggestive and able address, referred to the successful operation of the pharmacy laws and the labors of the various committees.

Respecting trade interests, he said: . . . "The pharmacist, while he is a professional man when employed as a chemist, or when consulted concerning the properties of medicines, has also a merchant's side, and must have a merchant's training—must be acquainted with prices, methods of buying and selling, and how to keep within the unwritten laws and amenities of trade yet be sufficiently enterprising." He also advised the appointment of a committee to prepare working formulas for non-officinal preparations, and an effort to secure a conference of delegates from the State Medical and State Pharmaceutical associations respecting matters of mutual interest.

In future, the published transactions will be more condensed.

The Treasurer will be allowed to draw upon the funds of the Association for current expenses to an amount not exceeding $150.

The next annual meeting will be at Hartford, date not determined.

The summer meeting is to be on the 10th of July.

The following are the officers and committees for the ensuing year: *President*, W. R. Francis, New Haven; *Vice-Presidents*, J. C. Nichols, New London; E. W. Thompson, New Britain; *Secretary*, F. Wilcox, Waterbury (re-elected); *Treasurer*, G. P. Chandler, Hartford. COMMITTEES:—*Executive*, N. D. Sevin, W. W. Mosher, C. W. Whittlesey, L. H. Goodwin, R. Wells, F. Wilcox; *Pharmacy and Queries*, C. A. Rapalye, W. A. Spalding, F. Rogers, C. B. Botsford, R. F. Woodruff; *Legislation*, L. I. Munson, E. A. Gessner, S. Goodrich, E. S. Sykes; *Trade Interests* D. Phelps, C. E. Shelton, F. S. Stevens, T. F. Main. DELEGATES:—Amer. Pharm. Assoc., N. R. D. A., and N. Y. State, J. Olmstead, N. D. Sevin, D. Phelps, G. B. Hanover; Mass., H. L. Parker, J. C. Nichols, C. A. Rapalye; New Jersey, C. W. Whittlesey, W. W. Mosher, T. F. Main.

The supper given by the New Haven pharmacists was laid for one hundred and fifty persons, the *menu* being printed on slippery elm bark (not bad for a pharmaceutical effort in the "Elm City.") The account of the exhibition will be found among our TRADE NOTES.

ITEMS.

Iodoform is being adulterated with picric acid, according to Jules Libert, a pharmacist of Liége, Belgium.—*Pharm. Jour.*

Sulphate of Cinchonidine, according to Messrs. Gehe, is being purchased in Germany as extensively as the supply will admit, for shipment to the United States.—*Pharm. Jour.*

Analysis of Patent Medicines.—An item is going the rounds to the effect that a bill has been introduced in Congress, providing that the manufacturers of proprietary medicines shall submit their formulas and samples of their wares for analysis to the Patent Office before patents are issued. If these medicines are found to be mostly cheap whiskey, they will be refused a patent. [This is probably a mistake, since we are not aware of a patented medicine of which the formula is not stated in the letters patent.—ED. AM. DRUG.]

An organization of druggists' clerks is said to be in progress in New York.

Ginseng root is said to have its weight fraudulently increased by replacing its pith with molten lead.

Mr. Carl Jensen, of Philadelphia, has instituted suits to recover damages from manufacturers infringing his patent process for manufacturing "Crystal Pepsin."

The Chesebrough Manufacturing Company have given notice that they will prosecute persons who put up petrolates in packages labeled "Vaseline," or who rebottle vaseline, and relabel it over their own name.

PHARMACEUTICAL CALENDAR.—MARCH.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Mon. 3d.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.	Wed. 12th.	New York Board of Pharm.
	Massachusetts Coll. of Pharm.—Boston.	Thurs. 13th.	Newark (N. J.) Pharm. Assoc.—Annual M.
Tues. 4th.	Maryland Coll. Pharm.—Baltimore.		Philadelphia (Pa.) Coll. of Pharm.
	St. Joseph (Mo.) Pharm. Assoc.		Maryland Coll. of Pharm.—Baltimore.
	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.—		N. Y. German Apoth. Soc.
Thurs. 6th.	Louisville (Ky.) Coll. of Pharm.		Lancaster Co. (Pa.) Pharm. Assoc.
Fri. 7th.	Cleveland (Ohio) Pharm. Assoc.	Tues. 18th.	St. Louis (Mo.) Coll. of Pharm.—Alumni As.
	American Chemical Soc.—New York.		Philadelphia (Pa.) Coll. of Pharm.
Mon. 10th.	Louisville (Ky.) Coll. of Pharm.—Annnal M.		St. Joseph (Mo.) Coll. of Pharm.
Tues. 11th.	St. Louis (Mo.) Coll. of Pharm.	Thurs. 20th.	New York Coll. of Pharm.—Annual Meeting.
	Massachusetts Coll. of Pharm.—Boston.	Mon. 24th.	Philadelphia (Pa.) Coll. of Pharm.—Annual M.
	National Coll. of Pharm.—Washington.	Tues. 25th.	Boston (Mass.) Druggists' Assoc.
	New York Druggist's Union, 2.30 P.M.	Thurs. 27th.	Kings Co. (N. Y.) Board of Pharmacy.—B'klyn.
Wed. 12th.	Cincinnati (Ohio) Coll. of Pharm.		

American Druggist

Vol. XIII. No. 4. NEW YORK, APRIL, 1884. Whole No. 118.

[ORIGINAL COMMUNICATION.]

SYRUP OF PROTOCHLORIDE OF IRON (FERROUS CHLORIDE).

BY JOSEPH F. SOMMERHOFF, PH.G.*

AMONG the many iron preparations which have from time to time been handed to the medical profession and have attracted considerable attention, is that of the syrup of protochloride of iron.

Although not officinal, it is prescribed by the physicians of certain localities in preference to the officinal preparations of iron.

This syrup is best prepared by two methods: *first*, by dissolving iron wire in diluted hydrochloric acid ($Fe+2HCl=FeCl_2+H_2$) and adding the solution thus obtained to thick simple syrup; and *secondly*, mixing together solution of perchloride of iron in certain proportions with glycerin and syrup and exposing this to the rays of the sun until colorless, when the sugar of the syrup will have changed the ferric to the ferrous chloride.

When to be made according to the first process proceed as follows: Take of iron (wire), 280 grains; hydrochloric acid (C. P.), 552 grains; water, 4 fluid ounces. Heat them together in a flask of the capacity of 12 fluid ounces and for about six hours at a temperature of 212° F. When the iron is all dissolved, filter the liquid and add to it enough simple syrup to measure 40 fluid ounces. The simple syrup is prepared by dissolving 3½ pounds of sugar in 28 fluid ounces of water.

For the second method, take of

Solution of Chloride of Iron (Ferric Chloride)	320 minims.
Glycerin	4 fl. oz.
Syrup, enough to make	16 fl. oz.

Mix and expose to the sun until entirely colorless.

Three or four days will be sufficient in summer, six to eight in the very coldest weather in winter; the coldest weather not being an impediment for the reduction, which can be promoted by heating the syrup near the stove before exposing it to the sun.

The syrup of ferrous chloride has also been made in a different manner. The following formulæ are taken from Hager's Manual and Praxis.

Syrupus Ferri Chlorati.

1. Chloride of Iron (ferrous, prepared by exposure to the sun.	1 part.
Hydrochloric acid...	5 parts.
Syrup.....	100 "
Dissolve. Prepare when required.	
2. Chloride of Iron (Ferrous).....	30 parts.
Hydrochloric Acid...	3 "
Syrup.....	480 "
Dissolve.	
3. Solution of Chloride of Iron (Fer.) sp. gr. 1.250–1.255.....	4 parts.
Syrup.....	20 "
Mix.	

When made by the first method, this syrup has a light-green color, slightly ferruginous taste and acid reaction. In iron strength each fluidrachm will contain as near as possible two grains of anhydrous ferrous chloride.

When made by the second method, it is almost colorless. In iron strength one fluidrachm is equal to 10 minims of the tincture of chloride of iron.

The syrup prepared from hydrochloric acid and iron preserves its greenish color for months, if not exposed directly to the rays of the sun. It is also well to keep the bottles well filled and tightly corked.

That made from liquor ferri chloridi keeps very well for a short time after exposure, but in diffused daylight, or even after a month's time. it will acquire a brownishh color without sensibly changing its qualities. I have also noticed a black precipitate after exposure to daylight for four months.

The chemical relations to other substances are such as are common to ferrous salts in general.

The advantages of this preparation are its miscibility, without forming a precipitate, with elixir of calisaya bark, tincture of gentian, the elixir and syrup of the hypophosphites, solution of bromides, etc.; its taste is not objectionable, it being certainly more palatable than either the tincture of the acetate or chloride, or the solution of the citrate or tartrate. Neither does it possess the diagreeable property of blackening and corroding the teeth, which many other iron salts possess.

Its medical properties are those of the iron preparations. The dose is one fluidrachm.

* From a Thesis presented to the College of Pharmacy of the City of New York, 1884.

[ORIGINAL COMMUNICATION.]

THE MANUFACTURE OF SALT AND BROMINE AT POMEROY, OHIO.*

BY CHAS. C. SEEBOHM, PH.G.

SALT exists in extensive beds, and even entire mountains, from which it is obtained in blocks or masses, by mining operations. Its geological position is very constant, occurring almost invariably in secondary formations, associated with clay and gypsum. In solution it exists in certain springs and lakes, and in the waters of the ocean. With the exception of a remarkable bed of rock salt in the island of Petite Anse, in Vermillion Bay, on the coast of Louisiana, there are in the United States no salt mines east of the Rocky mountains; but there are numerous salt springs which either flow naturally or are produced artificially by sinking wells to various depths in places where salt is known to exist.

It is on this last method of obtaining it that I intend to write. The place from which I derive my authority (my home, Pomeroy, Ohio) is a small city of the second class, situated on the banks of the Ohio river, about half way between Pittsburgh and Cincinnati. There is no doubt that the name of this city is familiar, for in later years it has become renowned as an extensive producer of salt, and the very important substance or element, bromine. Therefore, as these substances are the theme of my subject, I will aim to describe in the plainest possible way the manner in which they are produced.

The name of the furnace I have selected is the "Pomeroy Salt Furnace," managed by Mr. Edward Turnbull, to whom I am obliged for his endeavors to further the interest and value of my paper, by statistics and the liberty of his works. The furnace is situated at the lower end of the city, near what is called the Peacock Coal Mine, which places the necessary substance, coal, convenient for use.

The first step in the manufacture of chloride of sodium is to obtain the salt water, and this is furnished to the above-named furnace by three salt wells, which may be described as follows:

The *first, No. 1*, called the Pioneer, is 1,010 feet deep, and its pump is inserted to the depth of 600 feet. The wrought iron casing through which it passes on the inside is 3½ inches in diameter, and on the outside 4 inches. The diameter of this well below the pump at 600 feet is 2½ inches.

Well No. 2 is 1,024 feet deep, depth of pumps 575 feet, iron casing same size as No. 1. Diameter of the hole below the pump is 3 inches.

Well No. 3 is 1,050 feet deep, depth of pump 630 feet, inside diameter of pump 4½ inches, outside 5 inches. Size of hole below the pump is 3½ inches.

After the water is obtained from the earth, it is forced by means of another pump into a large wooden reservoir, but before passing into this reservoir, it passes through six long wooden troughs, containing fine sand and gravel. These troughs purify the water to some extent; that is, they retain as oxides a small quantity of iron which exists in the natural salt water.

The three wells pump on an average, when in good working order, 25 gallons of water per minute, or sufficient water, after it has all been purified and evaporated, to make 200 barrels of salt per day.

The impurities in the natural water consist of small amounts of chlorides of magnesium and calcium, and a few other natural impurities But the most noticeable is iron.

From the large wooden reservoir above-mentioned, the salt water is passed into what is called the heater. This heater is a small wooden reservoir, iron bound, through which large copper pipes pass. And in these the water is heated preparatory to entering the large furnace.

After it is evaporated in this heater for some time, it is run through hollow log troughs, into what is known as the large furnace.

This large furnace consists of three vats, or large wooden boxes, each being iron bound, the bottom of each being made up of ten iron pans. These vats are connected together by means of hollow logs, and under the iron bottoms or pans a direct and hot fire is maintained night and day, 1,000 bushels of coal being here consumed during twenty-four hours. In this large furnace the water is boiled until it attains from 12° to 13° by the salt hydrometer, at the temperature of 220 Fah.

After attaining this point, the water is run into shallow wooden reservoirs which are called the settlers. These are six in number, sometimes more, and are heated by steam circulating through copper pipes. The water slowly passes from one to another of these settlers, until it arrives at the sixth.

At this point the water is called brine, and it is now held at the temperature of from 220° F., to an average of 150° or 160°.

Old butter, grease, and such fatty matters, are now put into these settlers in order to settle the mud, as it is called.

From the sixth settler the brine passes into "the purifiers," which are usually two in number, and are large, deep wooden reservoirs, built on the same principle as the heater.

Before entering these purifiers, however, the brine is passed through a short wooden trough filled with lime. After remaining in the purifiers for

* A thesis presented to the Cincinnati College of Pharmacy, 1884.

twenty-four hours, during which evaporation is continued, it is passed into a large, shallow, wooden reservoir, known as the receiver. Here the brine must comply to the following conditions: It must denote 22° by the salt hydrometer, at a temperature of 160° Fah.

The brine is now at the point of saturation, and ready for making salt, and at this point it is held at 160° F., 88° by the salometer.

The water has, up to this point, been reduced fully two-thirds by the boiling and evaporation. Therefore it requires one hundred gallons of the water direct from the wells (which contains thirty per cent of salt) to make thirty gallons of brine of the above-named strength. And thirty gallons of this brine will make one bushel (50 pounds) "of a No. 1 dry salt."

From the receiver the concentrated brine is passed into the grainers. These grainers are large, shallow, wooden tubes, extending over a large territory, so to give them surface, through which are arranged large copper pipes heated by steam.

Here the salt crystallizes, the different grades being obtained at will. The following temperatures are used in evaporating, in order to obtain these different grades: *Coarse salt* requires 150° F.; *moderately* coarse salt from 160° to 175° F.; *fine* from 180° to 184° F.; and very *fine*, a still higher temperature.

After the salt crystallizes, it is scooped out of the grainers by the workmen, and laid in large drainers, and allowed to drain and dry, twenty-four hours sufficing for this operation, and then it is carted or wheeled into the salt house. The salt house is a substantial wooden structure divided into compartments, and each grade of salt has its department, into which it is bulked for market.

The analysis proves this salt to be ninety-seven per cent of chloride of sodium, two and one-half per cent of moisture, and one-half per cent of foreign matter or other impurities.

At the present day salt is shipped in barrels and sacks.

As the amount of salt produced in my region, and the price paid for it at the present in comparison with the past, may be of interest, I have compiled the following statistics:

About thirty years ago, there were six salt works in operation, and together they yielded not to exceed 750 barrels of 280 pounds each, or 5⅓ bushels of net salt per day. In the past year there were fourteen salt works in operation, and they together yielded, on an average, 3,100 barrels per day. Therefore, in a year of three hundred days, which is a fair average of running time, the yield will be 930,000 barrels.

Some ten years ago there were twenty-six salt works in operation, thirteen on each side of the Ohio River, but some have fallen into disuse and are closed up.

About thirty years ago the price of salt wholesale was from $1.10 to $1.15 per barrel, but during the past year it sold for less than the cost of production, from 65c. to 75c. per barrel.

(To be continued.)

Substitute for Roche's Embrocation.

DR. BLENKARNE says the following serves as well as the original to relieve whooping cough: Ol. succini, ʒiv.; Ol. camphoræ, ad ℥iss. M. To be rubbed on the back and front of the chest three or four times daily.

The same writer in the same connection speaks of an "old woman's remedy," viz.: a grain each of alum and powdered sugar, to be taken dry, every four hours, and an occasional dose of magnesia or senna.—*Brit. Med. Journ.*

[ORIGINAL COMMUNICATION.]

VASELINE.

BY E. FOUGERA, JR., PH.G.*

SOME eight years ago, Mr. E. Fougera, of New York, and Mr. Charles Lancelet, a French pharmacist, of Paris, experimented on a then new and quite interesting product which since received the fanciful name vaseline. Having participated in these researches, I will briefly describe some of its physical and chemical properties and likewise its mode of manufacture.

Crude petroleum oil, subjected to distillation, furnishes a series of hydrocarbons increasing in specific gravity until the end of said operation has been reached. Among the by-products, benzin is the lightest and paraffin the heaviest.

When all the lighter bodies have distilled over, the operation is discontinued, and as a residue there is found in the still a tar in odor and taste similar to that of petroleum, semi-fluid in consistence, but becoming gelatinous when cold.

In 1874, after many trials and dangerous experiments, owing to the gaseous distillates, Robert Chesebrough, of New York, succeeded in deodorizing and discoloring this tar residue, and gave it the name of "vaseline."

Vaseline is an undefined hydrocarbon composed of volatile, liquid, and solid hydrocarbons, which constitute a peculiar mineral jelly.

In appearance, vaseline is greasy, extremely unctuous, and, when pure, it is colorless, odorless, and insipid, its consistence being that of jelly. Its melting-point is 35° C., boils at 150° C., and distils at 200° C., yielding an amber-colored oil having the characteristic odor of petroleum. Vaseline is bland, resolvent, and unalterable in the light and air, but if exposed to direct sunrays, its petroleum odor at once is nascent and noticeable. In color, it is either "white," "blond," or "red," according to its degree of purity. It is neutral, inoxidizable, uncrystallizable, and insaponifiable; alkalies, metallic oxides, and acids show no reaction. Sulphuric and nitric acids decompose it only when raised to a high temperature. It is insoluble in water and glycerin, slightly so in alcohol, even when hot, totally soluble in hot ether, but only partly so in cold. It is soluble in all fatty bodies, wax, paraffin, essential and mineral oils, chloroform and disulphide of carbon. Cold, it dissolves bromine, iodine, iodide of sulphur, and sulphur at 150°. Heated in a flask with bromine, iodine, or iodoform and iron-filings, tasteless ferric salts are obtained which are unalterable. Phosphorus, when slightly heated in a flask containing vaseline, dissolves in but small quantities; if heated in a capsule containing vaseline, it burns while melting. Carbolic acid is soluble only to a small extent. But it readily dissolves cantharidin, coniine, atropine, nicotine, cubebine, and many other alkaloids. It enjoys the power of extracting the most intense, and retaining the most delicate odorous principles imparted to it. Gum benzoin, balsams of Tolu and Peru, vanilla, and Tonka beans, etc., . . . readily yield up to it their respective odors and active principles; likewise do chamomile flowers, juniper berries, laurel leaves, and the aromatic and narcotic plants when subjected to a heat of 40°.

In commerce, three kinds of vaseline are met with, different in color, but similar in properties. White vaseline is generally used internally, for cold cream, certain prescriptions, ophthalmic pomades, etc. The blond vaseline is used in pharmaceutical pomades and ointments, skin diseases, and as a hair-dressing. The red vaseline is mostly used for veterinary purposes, and with excellent results; it is also used in making colored ointments and a number of various preparations for the preservation of leather, wood, etc.

The manufacture of vaseline is quite simple. When the lighter liquids, gases, etc., of the petroleum oil have been distilled over, the remaining product, the tar, is placed in a large open iron boiler, which is suspended over a hot fire in the open air until deodorized; then it is allowed to cool. In a hot-air chamber (about 50°), arranged in rows, are large inverted tin cones filled with bone-black; upon these the deodorized tar is poured. At the end of a few hours, the tar comes through in a state of "white vaseline;" after a while, the bone-black becomes partially exhausted, the product is no more "white," but "blond," and as the operation progresses, the bone-black becoming weaker in its absorbing powers, the "blond" passes into a "red." Thus we have white, blond, and red vaselines. This mode of manufacture constitutes the American process. The French process was as follows: Owing to the considerable amounts of deodorized tar absorbed by the bone-black during the processes of filtration and discoloring, the French tried to be more economical. The deodorized tar was thoroughly mixed with four parts of pulverized bone-black, and, after twenty-four hours in the hot-air chamber (50°) the mixture was placed in percolators and washed with boiling ether, which dissolved the vaseline and carried it through into a recipient. The ether was recovered by distillation, and the vaseline was found, at the end of the operation, in the still.

The process worked very well on a small scale, but when it became necessary to work upon very large quantities, the *modus operandi* was found defective and not practicable, it being too costly and not expeditious enough. So they experimented with hot steam, trying to drive or force the vaseline out of the bone-black; but that was useless. Several other experiments were attempted, but to no purpose.

Several chemists, to discolor the deodorized tar, used sulphuric acid, or a mixture of sulphuric and nitric acids. It is much to be regretted, however, that such means should ever have been resorted to, because not only is it extremely difficult to wash out completely the excess of acid and water used in washing, which remains as in combination, but also because the vaseline acquires an acrid taste, becomes like pitch in consistence, and, above all, loses the greater part of its admirable and remarkable physical properties which rendered it so universally sought for.

When first manufactured, it originated and was sold only in New York, but soon the demand became so great that not only was it necessary to increase the ground and apparatus, but it was found necessary to manufacture the product in various parts of the world, in order to accommodate the consumers.

France, England, Germany, Italy, and many other countries have factories of vaseline established, manufacturing and selling the product.

* Extract from a thesis presented to the College of Pharmacy of the city of New York, 1884.

Poisonous Vanilla.

JAILLET reports that there is some vanilla in the market which has grown upon Réunion along the trunks of Jatropha Curcas, and has become contaminated by the poisonous milky juice of this euphorbiaceous tree. The author ascribes to this fact the noxious effects which have lately been observed to follow the eating of vanilla ices in some localities.—*Rundschau*, 1884, No. 35.

On Medicated Waters and Simple Elixir.

MR. JOSEPH W. ENGLAND lately read a paper at the Pharmaceutical Meeting of the Philadelphia College of Pharmacy (published in *Am. Journ. Pharm.*, February, 1884), in which he discussed the relative merits of the processes of the U. S. Ph. of 1870 and 1880. He finds that, while the process of 1870 was faulty on account of directing carbonate of magnesium to be used, the U. S. Ph. of 1880 was equally at fault in directing a manipulation (incorporating the oil into cotton), which often resulted in loss, and was not easy to manage.

In general, we may say that we agree with the author's criticisms. It is true that some oil may be lost by adhering to the fingers or the vessel in which the mixing is performed. The rate of packing the cotton in the percolator is likewise liable to give trouble occasionally. Nevertheless, in the case of such oils as oil of cinnamon, oil of anise, etc., which are not injured by a short, though intimate exposure to air, the resulting product is perfectly satisfactory. The loss of oil, in *these* cases, is of little account, since there is a large excess directed to be used, and the water percolated through the cotton will, even under the most favorable circumstances, fail to extract all the oil absorbed by it.

There are, however, certain cases in which the cotton process becomes quite objectionable. One of the most striking is the process directed by the U. S. Ph. for making *Elixir Aurantii*.

We are there directed to add the *oil of orange* to the cotton, in small portions at a time, distributing it thoroughly by picking the cotton apart after each addition; then to pack it tightly in a percolator, and gradually to pour on a mixture of one part of alcohol and three parts of water, until two hundred parts of filtered liquid are obtained, in which one hundred parts of sugar are to be dissolved.

Now, oil of orange is one of the most delicate and perishable essential oils. If permitted to stand for any length of time in a bottle containing a comparatively large quantity of air (though tightly sealed), or if kept in a full bottle not hermetically sealed, so that air can still osmose through the pores of the cork and renew the small layer of air on top of the oil, there will be a gradual change observed, betraying itself by the occurrence of a more or less pronounced terebinthinate odor and taste, which finally becomes so disagreeable as to make the oil unfit for further use. This approach, in physical properties, to oil of turpentine is probably due to oxidation, partial resinification, as well as to polymerization of the hydrocarbon of which the oil is composed.

To rapidly produce this deterioration, there is no better way than to distribute oil of orange over a large surface, and expose it to the air. Supposing we take perfectly fresh and sweet oil of orange (oil of lemon acts in the same manner), and impregnate cotton with it, an alcoholic extract of the latter will at once show the greatest difference in odor and taste from an alcoholic solution of the oil itself. And a hydro-alcoholic solution will betray the same difference, consisting in the former case of a most decided turpentine taste and odor.

To make a fine-flavored simple elixir, therefore, the officinal process is not the best that can be devised. We have tried both on the small and on the large scale. On the small scale, the risk is not so great, because it takes only a comparatively short time to incorporate a few drachms of oil of orange into cotton, and the consequent deterioration is not great. But *on a large scale*, the process is entirely impracticable. When as much as eight or ten fluid ounces of the oil are to be incorporated into cotton, it takes a very considerable time to do this properly. Though it may be done in instalments, and each small portion may be packed in the percolator as soon as impregnated, nevertheless, the time before liquid can be poured in the percolator is so long that the oil will *invariably* deteriorate, according to our experience.

While on this subject, we would add that the most economical and effective plan is to dissolve the oil of orange—while in its *fresh* condition—*immediately after being received* from the dealer, in deodorized alcohol, and to use a proper proportion of this solution when required. Those who try this plan once will probably never wish to experiment with another.

To return now to Mr. England's paper on Medicated Waters. While he acknowledges that *distilled* waters are generally superior to those made by means of the essential oil, he recognizes the practical difficulties in the way of making them by distillation, and adheres to the trituration process.

In looking around for a substance free from the objections raised against carbonate of magnesium, he finally hits upon precipitated phosphate of calcium—which substance had, however, already been proposed for the same purpose by one of us in the *Report on the Revision of the U. S. Ph.*, 1880, p. 15.

This substance is undoubtedly the best agent for effecting a thorough trituration and division of the oil.

The author, however, proposes another feature, which we consider of decided advantage, namely, he proposes to add to the oil, first, a definite quantity of alcohol, most or all of which will be dissipated if the directions of the author are followed, namely, that the alcoholic solution of the oil should be rubbed with the precipitated carbonate of calcium until the latter is a dry powder.

We presume the object of the author in directing the alcohol was to dilute the oil so as to bring about a more intimate mixture with the calcium salt. A still greater advantage, however, consists, in our opinion, in the protection which the presence of alcohol exerts over the oil while exposed to the air. And for this reason we think that the alcoholic solution of the oil should *not* be triturated with the phosphate of calcium until *all* the alcohol has evaporated and the calcium salt has become dry, but that the water should be added while the magma in the mortar is still moist. Surely nobody will raise any objection to the presence of perhaps 1 fluidrachm, or at most 1½ fluidrachms of alcohol in a quart of aromatic water.

The formulæ proposed by the author are the following ("Water" standing for "Distilled Water"):

Aqua Anethi Br.

	Parts.
Oil Dill..... ½ f ʒ	2
Alcohol.....1½ f ʒ	6
Prec. Phos. Cal...2 ʒ	8
Water to make..2 O	1,000

In the same manner are to be prepared:

Aqua Anisi.
Aqua Cinnamomi (Ceylon).
Aqua Fœniculi.
Aqua Menthæ Piperitæ.
Aqua Menthæ Viridis.
Aqua Pimentæ, Br.

Modified formulæ are given for the following:

Aqua Aurantii Florum.

	Parts.
Oil Neroli (Big.).12 ♏	2
Alcohol..... 1½ f ʒ	15
Prec. Phos. Calc. 2 ʒ	20
Water to make.. 2 O	2,500

Aqua Amygdalæ Amaræ.

	Parts.
Oil Bit. Almonds.15 ♏	1
Distilled Water.. 2 O	15

Aqua Camphoræ.

	Parts.
Camphor..... ....2 ʒ	8
Alcohol.....1½ f ʒ	6
Prec. Phos. Calc..4 ʒ	15
Water to make..2 O	1,000

Aqua Rosæ.

	Parts.
Oil Rose.....6 ♏	2
Alcohol.....1 f ʒ	30
Prec. Phos. Calc...2 ʒ	40
Water to make....2 O	5,000

Disguising the Taste of Tincture of Iron.

DR. HAGER recommends that tincture of the sesqui-chloride of iron be mixed with simple syrup, and then with milk. This mixture will not affect the teeth, nor will the styptic taste be apparent.

The Purgative and the Vesicating Principle of Croton Oil.

MR. HAROLD SENIER announced some years ago that the purgative property of croton oil resided in that portion which was soluble in alcohol. This statement was based on what the author believed to be careful experiments, and in consequence thereof it was naturally supposed that croton oil might easily be freed from the non-purgative portion by dissolving it in a definite quantity of alcohol, and evaporating the alcoholic solution. Another point was also established at that time, namely, that the solubility of croton oil in alcohol increased by age. This circumstance led to the natural conclusion that the therapeutic activity of the oil must increase in direct ratio with its increased solubility in alcohol, hence the wording of the description in the U. S. Ph. of 1880.

It appears, however, that Mr. Senier was in error at that time. He has continued his experiments and finds now that the very reverse is the case from what he formerly announced, namely, that the *purgative* property of the oil resides in the portion *insoluble* in alcohol. On the other hand, the portion *soluble* in alcohol contains the *vesicating* principle.

Dr. J. W. Meek, of London, at the request of Mr. Senier, experimented with the non-vesicating (alcohol-insoluble) portion of the oil and found that in doses representing the non-vesicating portion of $\frac{1}{10}$ minim of ordinary croton oil, it produced no appreciable effect beyond slight nausea and some sense of discomfort. But in doses containing the non-vesicating principle of ¼ minim of croton oil, it acted as a powerful purgative in from from three to six hours after administration.

Regarding the *solubility* of croton oil in *alcohol*, Mr. Senier says:

"When alcohol (sp. gr. 0.794 to 0.800) is mixed in equal volumes with English croton oil, perfect solution takes place, the mixture being permanent at all ordinary temperatures; and and this is equally true, when any less quantity of alcohol is taken. When, however, the proportion of alcohol to croton oil becomes as seven volumes to six, or any larger proportion of alcohol, then a part of the croton oil separates. This part varies in quantity, in the case of different samples of oil. It is an interesting fact that that portion of the croton oil which separates when the alcohol is in excess, is afterwards insoluble in any proportion of alcohol. But that portion of the oil dissolved by alcohol is, when separated, soluble in all proportions.

The vesicating principle Mr. Senier found to reside in the *combined* fatty acids. It may possibly be a fatty acid heretofore unstudied, and to clear up to this point, Mr. Senier will continue the investigation.—*Pharm. Journ.*, Dec., 1883.

UREA-ASSAY.*

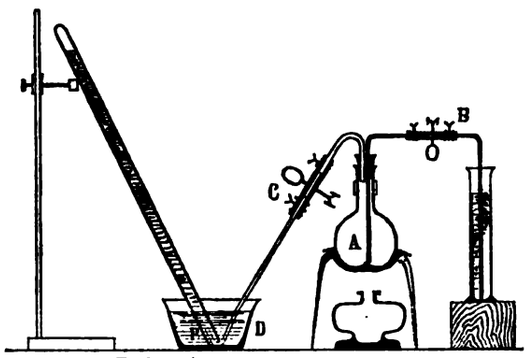
PROF. J. F. EYKMAN some time ago proposed a new method of estimating nitrous ether by means of a specially-arranged apparatus, which was fully described and illustrated in NEW REMEDIES (1882, 140). This method is now recognized to be the most reliable so far known for the purpose. The same author now proposes to use a similar apparatus for the more exact determination of *urea*.

The methods now in use for determining urea are either based upon titration (Liebig's process, by nitrate of mercury), or upon the volume of nitrogen liberated by an alkaline solution containing bromine [that is, an alkaline hypobromite].

The most recent modification of the latter method is that proposed by Hamburger.† While this method yields very good results, at least in so far as repeated assays of one and the same urine differ by not more than 1%, yet it appears to be faulty, since it would seem (from a consideration of his volumetric solutions) that about 16.5% of nitrogen *fails* to be set free and therefore escapes estimation.

It occurred to the author that a modification of his apparatus for estimating nitrous ether would serve for making more exact assays than are possible by other methods.

The modified apparatus is illustrated in the accompanying cut.



Eyckman's Apparatus for Urea-Assay.

A is a flask holding about 200 cubic centimeters which is closed by a doubly perforated rubber stopper, strongly secured by copper wire. The glass tube, *B*, has a calibre of only about 2 millimeters, and reaches nearly to the bottom of the flask, where its end is turned over at a right angle. The connections at *C* and *B* are made with stout pieces of rubber tubing fastened tightly with copper wire. The basin, *D*, is filled with mercury. The flask stands upon wire gauze placed on a tripod. The measuring tube or tubes are about 40 to 50 centimeters long, and are graduated to 50 cubic centimeters.

To prepare the apparatus for a series of assays, proceed as follows:

Warm the flask *A*, while the pinch-cock at *B* is open, until a sufficient amount of air is expelled; then let cool and allow water to ascend in *B*. Close *B*, open the pinch-cock at *C*, and boil until all the air is expelled. Then place the orifice (P) of the gas-measuring tube (see further on) over the end of *C;* open *B* and close *C*. Now warm the flask until the liquid has been pushed back in *B*. Then remove the heat, and when no more vapor is produced and the liquid in *B* has again ascended to near the pinch-cock *B*, close the latter. It is now ready for use, and may be employed for a series of operations.

If urea is to be estimated, allow 50 cubic centimeters of alkaline bromine solution ‡ to ascend in the tube *B*, taking care that no air enter the apparatus. Next the solution containing the nitrogen to be estimated (say 10 *cc.* of a solution of urea containing about ½ per cent; or one containing ½ per cent of ammonia, etc.) is allowed to enter in the same manner, and, finally, about 10 *cc.* of water, which serves to rinse the tube and brings the rinsings into the flask. Now close *B*, and warm the flask cautiously until the rubber tube above the clamp *C* begins to bulge out slightly. Then open *C* and receive the escaping gas in the measuring tube. Heat a little longer until no more nitrogen gas is given off, or until about 5 *cc.* of aqueous distillate has passed over into the tube. Then open *B*, close *C*, and allow the liquid to return through the tube (in the flask) into a beaker glass. Remove the lamp, and when the somewhat strong evolution of vapor has ceased and the liquid begins to reascend in *B*, close the stop-cock at *B* and proceed to make the next analysis.

Each operation consumes about ten minutes.

It will be seen, therefore, that once the apparatus is properly adjusted, it is ready for use at a moment's notice.

The measuring tube is prepared in the following manner: Its interior is first moistened, then about five *cc.* of mercury introduced, next about 0.2 or 0.3 *gm.* of pyrogallic acid, and, finally, it is filled up with solution of soda. It is now closed with the finger, and inverted over the orifice *p* in the basin *D*. The upward curve of *p* should reach a distance of about two centimeters up into the tube. When the analysis is finished, the tube is well closed with the finger, taken out of *D*, and shaken well for some time, to cause the absorption of the oxygen by the pyrogallic acid. The tube is then placed, in a slanting position, in a vessel containing water, so that the mercury and the soda solution may be replaced by almost colorless water. It is then again taken out, while closed with the finger, turned up and down a few times, in order to wash down the soda solution still adhering to the upper walls of the tube, and finally immersed in a high cylinder containing a thermometer, and filled with water of about the same temperature as the reagents employed. When the gas has assumed the same temperature as the water, the tube is lifted up until the level of the water inside and outside is alike, and the volume read off. At the same time, the temperature and barometric pressure of the air are noted.

Since the alkaline bromine solution as well as the soda solution contain a little air (and, therefore, nitrogen) in solution, the author determined the mean quantity contained in the volumes of these reagents directed to be used. He found this to amount to 0.5 *cc.* (nearly). Therefore, this value must be deducted from the amount of nitrogen finally left in the tube.

The percentage of nitrogen in the analyzed solution is then found from the following formula:

$$0.00125658\frac{273\ (H-e)}{(273+t)\ 760}\times\frac{V-0.5}{v}\times 100$$

[or, abbreviated:

$$\frac{0.045138\ (H-e)}{273+t}\times\frac{V-0.5}{v}]$$

in which the letters denote:

V = volume of nitrogen in tube in *cc.*
v = number of *cc.* of solution assayed.
t = temperature of the gas.
H = corrected barometric pressure in millimetres.
e = tension of aqueous vapor, in millimeters mercury.

A more simple calculation is made with the help of the usual tables giving the weight of one *cc.* of nitrogen at different temperatures and pressures by means of the formula:

$$\frac{a}{10}\times\frac{V-0.5}{v}$$

where *a* denotes the weight of one *cc.* of nitrogen in milligrammes.

If urine be taken for examination, this should be diluted, if the amount of urea is about normal, to five times its original volume. The amount of nitrogen then obtained in the measuring tube, from 10 *cc.* of this diluted urine, will amount to between about fifteen and thirty *cc.* If less or more be found, either a larger or smaller quantity of the diluted urine must be assayed, or another rate of dilution used.

The result is between four and five per cent short of the true amount of urea in the urine; hence a correction is necessary. The following *general* formula will furnish the true amount of urea in one liter of the undiluted urine:

$$\frac{V-0.5}{v}\times 2243\ ab$$

were:

V = volume of nitrogen obtained in *cc.*
v = volume of diluted urine assayed.
a = weight of one *cc.* of nitrogen at the observed temperature and pressure (according to usual tables).
b = rate of dilution of urine.

If b = 5, the formula becomes:

$$\frac{V-0.5}{v}\times 11215\ a$$

The alkaline bromine solution used by the author liberates nitrogen (mostly in part only) also from other nitrogenized compounds, among others, from uric acid, creatin, etc. Hence, if urea in *urine* is determined by the above formula, it will be, after all, somewhat higher than in reality. For perfect accuracy, the other bodies would have to be determined separately. But for practical purposes, this is not necessary.

[For the busy practitioner, the above method is not suitable; but it will be found convenient for physiological laboratories, or wherever the requisite apparatus and skill of manipulating it are available.—ED. A. D.]

* Abstract of a pamphlet entitled Zur Harnstoff-bestimmung. Von J. F. Eykman, Tokio, Japan, 1884. Communicated by the author.

† Rec. de Trav. chim. des Pays-Bas, ii., No. 5.

‡ According to Prof. Eykman, the result is but little influenced by the composition of the "bromine-lye." He appears to prefer a mixture containing 5 *cc.* (or 15 gm.) of bromine and 150 gm. of caustic soda per liter.

Chlorine Fumigations.*

CHLORINE fumigations are performed in many different ways:

The Brit. Pharm. only mixes chloride of lime with water.

The German Pharm. (first edition), Swiss and Russian, have two kinds: a *milder* (fumigatio mitior), which is made by adding vinegar to a mixture of chloride of lime and water, the Russian specifying 240 parts of vinegar for every forty-five of chloride of lime.

The *stronger* fumigation of the three just mentioned pharmacopœias is effected, like that of the Danish and Norwegian, by taking dioxide of manganese, chloride of sodium and sulphuric acid in the following proportions.

	PHARMAC.		
	GERM. I RUSS. HELVET.	DAN.	NORW'G.
Chloride of sodium.	10	10	10
Dioxide of manganese	10	7.5	5
Crude sulphuric acid	20	17.5	7.5
Water.	10	10	10

Theoretically, 10 parts of pure chloride of sodium require 7.44 parts of pure dioxide of manganese, and about 17 parts of concentrated sulphuric acid for complete decomposition. These

* From Dr. Hirsch's Supplement zur Pharm. Germ. (see title on page 78).

proportions are most closely approached by the Danish Pharm. But since the commercial black oxide of manganese seldom contains more than sixty to seventy-five per cent of pure dioxide, the formulæ of the three other pharmacopœias are to be preferred; only the acid is to be somewhat reduced.

The effect of the two several method of the above mentioned three pharmacopœias depends, of course, upon the quantity of material used. When completely decomposed, 3.034 parts of a twenty per cent chloride of lime give out as much chlorine, theoretically, as one part of pure chloride of sodium.

For fumigating a space of 30 cubic meters, the Norwegian Pharm. directs 10 gm. (150 grs.) of cloride of sodium, 5 gm. (75 grs.) of black oxide of manganese, and 7.5 gm. (112 grs.) of sulphuric acid. Others deem a much larger quantity necessary, namely, respectively 30 gm. (1 oz.), 30 gm. (1 oz.) and 60 gm. (2 oz.).

The Swedish Pharm. develops the chlorine, for fumigations, from 1 part of black oxide of manganese and 3 parts of crude sulphuric acid, sp. gr. 1.165 to 1.170.

Note by Ed. A. D.—When it is necessary to *disinfect* hospital wards, sick-rooms, the holds of ships, etc., with chlorine gas, much larger quantity of the ingredients must be used than are indicated by the formulæ above given. The expense, in such a case, is no factor to be considered. To be effective and thorough, the gas must be generated in such abundance that it will displace a good portion of the air and penetrate into every nook and crevice accessible to gas. If the atmosphere of the room to be disinfected is dry, the success of the disinfection will be doubtful. To be of real value, the walls and floors should be abundantly sprinkled or wetted down with water before the gas is developed, and the rooms closed. A still better way, where it is convenient to do so, is to inject a continuous, though small jet of steam into the room.

Every hole in the wall, crack in the windows, or other place where the generated gas could escape must be carefully closed up, which may be done partly by pasting strips of stout brown paper along the places, by means of mucilage or starch paste. To prevent the paper from peeling off, when dry—which will be usually be the case if it is directly applied to a painted or varnished surface, the places where the paper is to be applied are first sized by being rapidly brushed over (by means of a broad painter's or white-wash brush) with a watery solution of glue or gelatin.

The apparatus for disinfecting large rooms is best constructed in form of large shallow pans, made of sheet lead, and kept in shape by being put into a large wooden box.

For a room of a capacity of, say 7,200 cubic feet (40 feet long, 20 feet wide, and 9 feet high), which is to be *disinfected* after the occurrence of some contagious disease (puerperal fever, typhus, pyæmia, erysipelas, etc.), we have always considered an amount (in volume) of at least *one-fortieth* of the cubic capacity of the room to be necessary. It is true, a much smaller amount may often be sufficient, but it is better to err on the safe side.

According to the equation:*

MnO_2	+	$2NaCl$	+	$2H_2SO_4$	=
dioxide of manganese		chloride of sodium		sulphuric acid	
86		116.8		196	

$MnSo_4$	+	Na_2SO_4	+	Cl_2	+	$2H_2O$
sulphate of manganese		sulphate of sodium		chlorine		water
				71.8		

and considering the commercial oxide of manganese to contain only 60% of available dioxide, and also considering the sulphuric acid to contain only 90% of absolute acid, the proportion of the ingredients would become, say in pounds:

Oxide of Manganese...130 lbs.
Chloride of Sodium...116.8 "
Sulphuric Acid.....218 "

The chloride of sodium is assumed to be pure. These substances would yield 71.8 pounds of chlorine, which would be equal to 358 cubic feet. As this is almost exactly one-twentieth of the cubic space (7,200 cubic feet) of the room we spoke of above, we need only *halve* the above quantities to obtain a volume of chlorine equivalent to *one-fortieth* of the cubic capicity. That is, we need

Oxide of manganese... 65 lbs.
Chloride of sodium.... 59 "
Sulphuric acid.....109 "

to which, however, at least 300 lbs. of water must be added, to facilitate reaction.

The tray, of sufficient capacity, having been placed in the middle of the room, on the floor, the manganese and salt are put in, thoroughly mixed with wooden stirrer, and the water added. The carboy of sulphuric acid is placed alongside the tray and in the neck of it are arranged one or more siphon-tubes directed to different parts of the tray. When all the cracks have been pasted up, the floor and walls wetted down, and everything is ready—only one door being left open, one of the persons starts the siphons running by blowing into a short tube passing through the cork of the carboy (or in any other manner). This must be done quickly. In fact, it had better be done so that the first portion of acid running from one siphon is caught by an attendant in a vessel, while another siphon is started. When they are all started, the attendants quickly empty the vessels in the tray, and rapidly retire from the room, which is immediately locked, and the door of which is made tight so that the gas cannot escape.

* Mn = 54.

To Distinguish Bromides of the Alkalies.

H. Hager says that when 0.4 gramme of a pulverized bromide be placed in a dry test-tube, and 4 or 5 cubic centimeters of a solution of cupric sulphate be allowed to flow down the side of the tube, the following effects will follow: When bromide of potassium is used and no iodide is present, it will remain uncolored. Bromide of sodium will be blackened, and, if pure, a greenish-blue solution will result. Bromide of ammonium gives a red-brown color.

Giving Medicine to Dogs.

A writer in *Land and Water*, quoted by the *Chemist and Druggist*, advises pills as preferable to any other form of medicine for dogs, and says: "To force a pill, open a dog's mouth by pressing his cheeks between his teeth with the left hand, and drop the pill as far back as possible, and give it a push with a finger of the right hand. To deceive a dog into taking a pill, have the medicine in as small a compass as possible. Have three *cubes* of meat about the size of hazel nuts. Make a hole in one in which bury the pill. First give a piece without the pill, so that on biting it the animal finds nothing unusual. Next give the piece containing the pill, and at the same time show the third piece, which causes the dog to bolt the all-important morsel, that he may get the third bit. Large powders may be added to the food if not disagreeable to taste or smell. Small powders may be thrown into the back part of the mouth. In giving fluids from a spoon, force the mouth open as before directed, and with the right place the spoon against roof of the mouth. In the case of large or bad tempered dogs, place a tape muzzle on the nose and use a bottle. The head is to be raised, the lip drawn up above the tape on one side so as to make a funnel, and the fluid poured in, a little at a time. Fluids should never be forced on a dog with a sore throat, as they are liable to cause choking. Caustic or irritating substances should be well diluted. Volatile substances should not be given with warm water.

Chlorophosphide of Arsenic.

Arsenic acid..... 4 grs.
Phosphorus..... 8 "
Diluted muriatic acid..12 drs.
Water, sufficient to complete.....18 ozs.

Mix. Digest on a water-bath for 24 hours, and decant the supernatant liquid

Vanadium Ink.—Following the suggestion of Dr. Ure, made twenty years since, a mixture of vanadate of ammonium with nut-galls has often been spoken of as giving the very best black and indelible ink. A correspondent in Danville, Va., writes that in his experience the ink so made is no blacker than that made with nut-galls and iron, and not in the least degree more stable against chemicals. It is more expensive, and that is all that can be said of it.

Incompatibles.

Wine of antimony..... 3 drs.
Wine of ipecac..... 3 "
Tincture of sanguinaria. 2 "
Sulphate of morphia.... 3 grs.
Syrup of wild cherry... 3 ozs.

The precipitate formed is due to two causes: 1, the resin of the blood-root, which is not soluble in a watery liquid, like the syrup of wild cherry; 2, the incompatibility of the tartar emetic with the tannin present in the syrup, and which is more than sufficient to precipitate all of the antimony.

Hypodermic Solution of Quinine.

D. E. Holt, of Woodville, Miss., recommends the following:

Sulphate of quinine....480 grs.
Diluted sulphuric acid,
Water of ammonia,
Water.....āā sufficient.
Alcohol of 95°..... 6 ozs.

Put the quinine in a quart graduate, add about a pint of water, and stir well with a glass rod; then gradually add diluted sulphuric acid until the quinine is dissolved. Add water of ammonia in small portions and with stirring until quinine ceases to be precipitated, and ammonia is in slight excess. Collect the quinine on a calico filter and wash it with water until free from sulphate of ammonia. Dry the quinine by pressure in a cloth. Break up the lump, put it in a graduate, and pour on the alcohol and stir with a glass rod until the quinine is dissolved. Then cover the graduate with blotting paper, and set it aside until the contents are reduced, by evaporation, to 5 ounces. Then filter into the stand-bottle through absorbent cotton in the neck of a funnel, pouring back the first ounce to catch any lint. Note the quantity of solution it took to saturate the cotton, and, at last, add an equal amount of alcohol to displace the solution. Label: Hypodermic solution of quinine, 4 grains to 20 minims. In dispensing, wash the vial and cork with alcohol and fill gently from the stock bottle, as this avoids filtering all but the last portion. In use, wet the needle and piston first with alcohol, as water will cause a precipitate, and wash them afterwards with alcohol. This is not apt to cause an abscess.

The Preparation of Precipitated Oxide of Iron.

THOUGH it is generally supposed, particularly by beginners, that the precipitation of oxide of iron (ferric oxide) is one of the most simple and easy processes going, experienced pharmacists know well that this is not the case. Our readers have heard so much about this subject from ourselves and the usual works of reference in use here, that it will be of interest to them to hear what Dr. Hirsch * says on this subject.

In precipitating oxide of iron, the solutions must be *cold* and so far *diluted* that the iron solution contains not over 2 per cent of metallic iron, and the ammoniacal liquid not more than 2 per cent of gaseous ammonia. The iron solution must be poured into the ammonia, not vice versa. For stirring a *stout* stirrer should be used, so as to be able to stir briskly and cause a quick reaction between the substances. For the same reason the iron solution is to be added, not rapidly and in large volume, but in a *uniform, very thin stream*, perhaps with the aid of a narrow siphon. Both during the precipitation and after its conclusion the liquid must always have a decided alkaline reaction. The precipitate is collected upon a conical linen (bag) strainer of known weight and washed so that the surface of the precipitate is allowed to become exposed before a new portion of wash-water is added, which is then carefully stirred up with the oxide to a depth of 5, 10, 15, etc., centimeters, according to its total bulk. The stirrer and the inner sides of the strainer are then rinsed with plenty of water, which collects on the surface and acts by displacement. Next day the strainer is emptied by being turned inside out, well washed with water, the precipitate stirred up thoroughly with the washings until it forms a uniform thin magma, which is further diluted with water and again transferred to the strainer. This manipulation is repeated until the washings cease to affect solution of barium or silver salts. Three or four times are usually sufficient, even for very long strainers (up to about 1 meter in length). The precipitate is now allowed to drain well, the bag then tied firmly above the contents, the whole *weighed* and placed under the press, where it is subjected to a pressure which must be increased only *very* gradually and cautiously, to prevent rupturing the bag. Small filter-bags require about 6, large ones 12 or more hours. The expressed liquid is caught in a receptacle, and weighed from time to time, in order to have some approximate idea of the weight of the residue, which it is often useful to know. The pressure should be continued until the contents of the bag may be taken out in coherent pieces. Experience has shown that this is the case when the cake weighs about ten times as much as the metallic iron contained therein, or what is the same thing, when it weighs as much as the 10% iron solution originally employed. [The Liquor Ferri Sulfurici Oxydati of the German Ph., II., which has a specific gravity of 1.318 and contains 10% of metallic iron, is practically identical with the Liquor Ferri Tersulphatis of the U. S. Ph., 1880, the specific gravity of which is 1.320.] If the pressing is interrupted before, the residue will be a more or less dense magma, which separates from the strainer only with difficulty and is difficult to dry. Moreover, for some purposes, as for preparing the Liquor Ferri Acetici, Ph. G., it still contains too much water.

The washed and pressed hydrated oxide of iron is now to be *dried*. While the Pharm. prescribes a gentle heat, it would have been better to limit it at 20°–25° C. (68°–77° F.), and to have further demanded that the dry product should approximately contain three equivalents or twenty-five per cent of water, and that it should be easily soluble in cold diluted hydrochloric acid. For the solubility of the product, as well as its therapeutic value, diminish in direct proportion with its decrease in percentage of water.

The different hydrates have the following composition:

$Fe_2O_3.3H_2O$ = 214, cont. 25.234% water
$Fe_2O_3.2H_2O$ = 196, " 18.367% "
$Fe_2O_3.H_2O$ = 178, " 10.112% "

Upon this percentage of water depends, of course, also the final yield; 100 parts of the original iron solution (containing 10% of metallic iron), yield 19.1, or 17.5, or 15.9 parts of product respectively, according as it contains 3, or 2, or 1 equivalents of water.

Very curious is this property of hydrated oxide of iron that, while drying, it absorbs the carbonic acid gas of the air like a sponge, and may be again freed from it by mere heating with water. The presence of an alkaline base, in the oxide, is not at all necessary for this absorption to take place. The more amorphous and hydrated the product is, the larger is the amount of carbonic acid present, and vice versa. By long keeping, it loses a large portion of it.

* In his new work, the title of which is given in foot-note on page 73.

Litmus Solution and Litmus Paper.*

To prepare a highly sensitive solution of litmus, Stutzer recommends the following method. Commercial litmus is dried, finely ground, and the coloring matter extracted with cold water. The united liquid extracts are filtered, evaporated to about one-fourth on a waterbath, then mixed with some clean sifted sand, and finally with enough hydrochloric acid to render the liquid faintly acid, whereupon the whole is evaporated to dryness. The dry residue is repeatedly extracted with alcohol of 80–85%, until the latter scarcely takes up anything more, and the remaining residue of litmus and sand is evaporated to dryness on the waterbath. For use, portions of this are extracted with hot water to which a few drops of ammonia are added. The liquid is poured off from the sand and transferred to high glass-cylinders, in which all the suspended particles will settle to the bottom within twenty-four hours. In this way, the exceedingly tedious filtration of a concentrated, turbid litmus solution is avoided. Portions of the clear solution (or the whole of it, according to circumstances) are then poured into cylindrical glasses (test-tubes, etc.), and carefully neutralized with diluted sulphuric acid, or with ammonia as the case may be, so that the liquid has still a distinctly blue color. The proper tint will be indicated by the fact that 3 or 4 drops of the liquid mixed with 25 Cc. of distilled water will soon color the latter onion-red, in consequence of the carbonic acid held in solution by it. When requiring some of the litmus solution for titration, it is best to remove the requisite quantity by means of a small glass-tube serving as a pipette.

If prepared in the described manner, the litmus solution is free from all impurities which interfere with its sensitiveness, and only contains the real blue coloring matter, the so-called azolitmine. The hydrochlorate of azolitmine is insoluble in water and alcohol, and may thus be separated from the other coloring matters. If an alkalimetric titration is performed with the above-described litmus solution, the onion-red coloration (as soon as a trace of acid is in excess) appears suddenly and sharply without intermediate tints. Hence, the use of such a purified litmus solution is highly to be recommended. As its preparation is somewhat circumstantial, it is best to make a larger quantity at a time. The residue of sand and pure litmus can be kept unchanged for any length of time, and any desired quantities of it may be deprived of the coloring matter by treatment with water and some ammonia. Of course, this purified litmus solution is chiefly intended only for use in scientific analysis, and in experimental, technical or manufacturing laboratories; while it would be unnecessary for the daily control analyses of large works (as, for instance, soda works) which consume a large quantity of litmus.

It should be added that a considerable portion of coloring matter is lost in the preparation of the litmus purified according to Stutzer's process. This feature is, of course, of more importance in factories (which often consume 200 to 300 pounds of litmus per year) than in scientific laboratories.

Litmus paper is prepared with the aid of the solution of litmus just described, made sensitive by the cautious addition of sulphuric acid. The selection of a suitable paper is also of paramount importance. Among the best is fine letter-paper known in commerce under the name "papier vergé."

This paper is laid, in half sheets, into the tincture contained in a porcelain dish, and the sheets turned over so that both sides receive an equal amount of coloring matter. The sheets are removed after a while, allowed to drain, and, if necessary, deprived of excess of liquid, by swinging about, and finally hung up on strings, in the room, to dry.

In this way an exceedingly sensitive light bluish-violet litmus paper is obtained which is best kept in form of half-sheets. When cut in strips, these must be kept in a bottle or box, and must not be exposed directly to the atmosphere prevailing in the factory or laboratory.

Only if prepared in this manner is litmus paper really sensitive. When withdrawn from the solution, the moist sheets must have rather a reddish than a violet tint. When dry, they assume a bluish-violet tint, while, if the paper had a violet color when moist, it would turn blue on drying.

* Extract from a work by DR. FR. BÖCKMANN, entitled: *Chemisch-technische Untersuchungsmethoden der Gross-Industrie, etc.* 8vo, Berlin (Springer). Vol. I., pp. 98. This work can be specially recommended to practical analysts.

Cultivation of Castor Oil Plant.

THE Revenue and Agricultural Department of the Government of India has published a "Note on Castor Seed," drawn up by Mr. T. N. Muckarji, giving particulars of the method of cultivating the castor-oil plant and preparing the oil. As the plant is cultivated in our Western States, we reproduce the salient points for the benefit of our readers there. The plant may be grown on almost any kind of soil, although it loves a sandy loam, and will not grow well on clays. It does not require any special care, besides the ordinary ploughing and manuring bestowed on cereal crops. In upper India, it is sown in March or April, two or three months before the rains, and in July at the beginning of the rainy season. The fruit of the first sowing ripens in November and continues to yield seed till March; that of the second sowing ripens in May. The plants, which grow eight or ten feet high, are cut down after having borne for one year, as the second year's produce is inferior in quality and less in quantity. The seed is soaked, for twelve hours, in water, and is then sown by hand, one yard apart. Twelve pounds of seed are required for an acre. The crop needs no further care, except watering, if the weather is too dry. The fruits are plucked by hand before fully

ripe, and exposed to the sun; when dry, the seeds are separated from the outer shell.

The oil, roughly prepared by the natives, is very impure, thick, and viscid, and smokes offensively when burnt in lamps. It is also used to anoint shoes, water-bags used for raising water from wells, and other agricultural appliances made of leather. (It is said that rats will not attack leather so treated.) The makers for export sell four qualities: No. 1, cold-drawn; Nos. 2, 3, and 4, coal-drawn.

Messrs. Khettra, Mohan & Bysacks, of Calcutta, have supplied details of the processes they employ. For the cold-drawn, the seeds are cleaned by hand by women. A quantity of the seeds are placed on a board, and are struck once or twice with a mallet, which breaks the seeds into two or three pieces; they are then winnowed, dried in the sun, broken by a crushing-machine, placed in small canvas-bags, and pressed in a hand-machine. The oil is bleached by exposure to the sun in large, open galvanized iron vats. This also causes the sediments to precipitate. It is then boiled, to remove the last traces of moisture. Vegetable charcoal is then added, and the oil is thrice filtered through flannel or blotting-paper.

The coal-drawn No. 1 is made in the same way, except that fire is put beneath the press at the time of pressing, and a mixture of animal and vegetable charcoal is used when filtering. These two qualities are only made to order. Coal-drawn 2 is made as above, but is not filtered: it is largely made and exported. Coal-drawn 3.—The seed is husked by machine; the oil is therefore not so clean. It is not filtered. The seeds have been found to yield 34 to 35 per cent of oil. The husk is used for fuel. The oil-cake contains a large amount of phosphates, and is an excellent manure for sugar cane, potato, or coffee. A case has been known where it has been substituted by mistake for rape-cake; several sheep died from the effects of eating it before the mistake was discovered.—After *Chem. and Drug.*

Solution of Ferrous Iodide.

WHILE commenting upon the method of making the syrup of iodide of iron, known as Dupasquier's,* Dr. Uggeri Francesco proposes an improved method of preparing the solution of ferrous iodide so that it will keep without the necessity of adding sugar. While this improved method is not new, having been advocated years ago in this country, yet it deserves to be again recorded, since it is of more value than has been supposed. The process is the following:

Iodine, resublimed..	8 parts.
Iron, in powder.....	2.5 "
Glycerin, pure, 30° B.	90 "

Weigh the glycerin and the iodine into a porcelain capsule and heat the mixture on a water-bath until the iodine is dissolved. Now add the iron in small portions at a time, constantly stirring, and keep the temperature at 80° C. (176° F.). Fifteen minutes after the reaction is terminated, and the liquid has required a dark-green color, set the capsule aside so that the excess of iron may deposit. Then decant the liquid carefully into a glass-stoppered bottle and set this aside. After a few days the remaining suspended iron will settle to the bottom, so that the clear liquid may be decanted. The liquid is too dense to make filtration advisable, except with the aid of a rapid-filtering apparatus.

* The original formula of this is the following:

	PARTS.
Solution of Ferrous Iodide 10 per cent..	20
Syrup of Acacia.....	220
Syrup of Orange Flower Water.....	60

It has been modified in various ways.

The solution thus prepared has a green color verging to black when in bulk; it has a sweet, astringent and ferruginous taste, and is free from odor. It is miscible with water in all proportions and contains 10 per cent of ferrous iodide. In this form, the solution keeps perfectly.

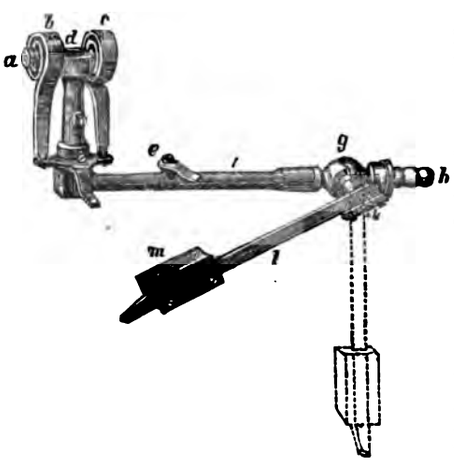
Dupasquier's Syrup of Iodide of Iron may be prepared from this solution by mixing

Solution of Ferrous Iodide.....	6 parts
Syrup of Orange Flower Water	24 "
Simple Syrup.....	70 "

—*Bolletino Farm.*, 1883, 155.

Delicate Test for Gallic Acid.

ACCORDING to Sydney Young, an aqueous solution of gallic acid, when treated with solution of cyanide of potassium, acquires at first a fine red color which soon disappears if the liquid is allowed to stand quietly. On shaking, however, the color reappears, and again disappears on standing. This change may be reproduced fifteen to twenty times. Pure tannic acid does not show this reaction; but in commercial tannic acid the presence of gallic acid may be shown either directly, or by testing the ethereal extract. —*Ber. D. Chem. Ges.* and *Ch. Centralh.*



GAS-BURNER WITH AUTOMATIC SHUT-OFF.

THE gas-burner here described was constructed by Pfeil for the Physiological Institute at Berlin for the purpose of shutting off the gas of burners automatically, in case the supply should accidentally give out.

The construction is quite simple. At *h*, the apparatus is connected with the gas supply; *g* is the stop-cock, having a long, lever-like handle, which may be weighted more or less, by pushing the sliding weight towards the end.

When turning on the gas of the burner, the lever-arm is first laid upon the swivel *e*. The heat of the gas expands the two spirals *b* and *c*, which are constructed of different metals, so as to have a different rate of expansion, the spirals being connected by a rod which revolves along the edge of the burner. Gradually the spirals will assume such a position that the end of the lever may be placed upon the projecting ledge *f*. Should the supply of gas fail and the burner become cold, the spirals would begin to contract and resume their original position, whereby the supporting ledge *f* would be drawn away from under the lever *l*. The latter would then sink and shut off the gas.

These burners are made and sold by Jul. Schober, of Berlin.—*Chem. Zeit.*

Sulphuric Acid from Pyrites.—It is said that commercial oil of vitriol, of 66° Baumé, can now be made from iron pyrites at a cost of one cent per lb.

Eno's Fruit Salt.

AN article resembling "Eno's Fruit Salt" is said to consist of

Rochelle Salt	3 parts
Tartaric Acid.....	24 "
Bicarbonate of Soda..	30 "
Powdered Sugar.....	80 "

With a flavor of lemon.

—*New Idea.*

Albespeyre's Blistering Plaster (*Ind. Pharm.*).

Linseed oil.....	1⅛ ounces.
Beeswax.....	4⅞ "
Pitch.....	14⅛ "
Cantharides, powd.	11⅛ "

Melt the pitch, oil, and wax together.

Dr. Mittauer's Aperient Mixture (alkaline mixture of aloes).

Aloes.....	2½ ozs.
Bicarbonate of sodium.	6 "
Comp. spirit lavender.	2 "
Water.....	4 pints.

Mix. Macerate for 2 weeks and filter. Dose: 1 fl. dr. to 1 fl. oz., half an hour after meals, for costiveness.

Marking Ink.—Cut lampblack with the least possible quantity of alcohol, and then dilute the paste with the following:

Borax.....	3 drs.
Water of ammonia.....	2 "
Shellac.....	2 ozs.
Water.....	1 pt.

Mix, and digest at a gentle heat, with occasional agitation, until the shellac has dissolved and the smell of ammonia has disappeared. Finally replace the water lost by evaporation.

Glycerite of Tar, made according to the following formula, according to T. S. Wiegand, is miscible with water in all proportions, and yields a clear liquid:

Oil of Tar.....	f. ℥i.
Alcohol.....	f. ℥ij.
Glycerin,	
Water, of each.....	f. ℥iv.
Carb. magnesium...	q.s. (or ℥vi.)

Mix the oil of tar with the alcohol, and rub these thoroughly to a smooth paste with the magnesia; to this add the glycerin and water, previously mixed, and place in a well-corked bottle; shake frequently for several days, and then filter through paper.

Syrup of Tar may be made by mixing ℥ij. of the glycerite with ℥xiv. of syrup.

Wine of Tar may be made by ℥iij. of the glycerite, ℥iv. of sherry wine, ℥ij. of syrup, and enough water to make one pint.—*Ind. Pharm.*

Emulsion of Copaiba.—Query, How best to dispense?

Balsam of copaiba.	12 drachms.
Powdered extract of licorice,	
Powdered acacia, of each.....	sufficient.
Camphor water, enough to make.	3 ozs.

Ans. Place in a dry mortar 6 drachms each of powdered acacia and extract of licorice (thoroughly dry) and pour on the balsam. Mix well, and add, at one time, 12 drachms of camphor-water. Continue stirring until the mixture is complete, scraping the sides of the mortar and pestle occasionally. Then add the camphor water little by little, until the total amount of 3 ounces is obtained.

Butter Color.

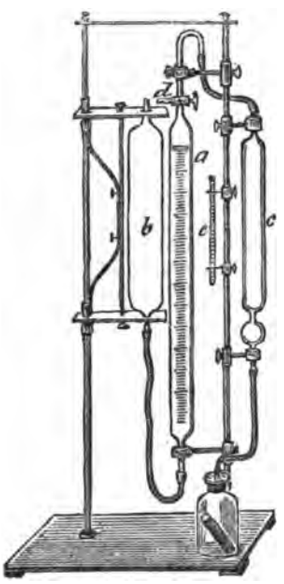
Annatto.....	1 oz.
Turmeric	1 "
Olive oil.....	3 ozs.
Spanish Saffron...	1 drachm.
Alcohol	5 drachms.

Macerate the annatto and turmeric for four days in the oil, and the saffron in the alcohol for the same length of time. Filter the first, adding enough oil to complete the measure. Add the tincture of saffron and evaporate the alcohol with the aid of a gentle heat.

APPARATUS FOR DETERMINING LARGER QUANTITIES OF CARBONIC ACID.

Two stout metallic rods, each about three feet long, are fastened into an open base, and connected, above, by a cross-piece. One of the rods carries a double shelf holding the levelling-tube *b*, while to the other are fastened, by adjustable clamps, the gas-measuring tube *a*, the air-tube *c*, and the thermometer *e*.

The measuring-tube, which is graduated into 200 (or 300) *cc.*, is provided, at *d*, with a three-way stop-cock, which establishes communication either with the outer air, or with the air-tube *c*, that is, with the generating vessel below. The small tube for holding acid, in the generating vessel, is made of hard rubber. The tubes *a*, *b*, and *c* are connected with each other by flexible tubing. While the levelling-tube *b* is short and wide, the measuring-tube has such a diameter that 0.5 *cc.* can be exactly read off.



The practical application of the apparatus is evident from the illustration. The measuring-tube *a* and the levelling-tube *b* having been charged with enough mercury, or some liquid which will absorb carbonic-acid gas slowly, so that the level of the liquid in *a* stands equal to the top-line of the graduated scale, and the tube *b* being raised at the same time, so as not to be more than half-filled—the generating vessel is then tilted to one side, so that the acid may run upon the weighed carbonate contained in it. The stop-cock *d* having previously been so turned that tubes *c* and *a* communicate with each other, the generated carbonic acid gas will increase the volume of air in *c*, and push down the level of the liquid in *a*. To facilitate the complete evolution of the gas, the levelling-tube *b* is lowered, so as to reduce the pressure in *a*. When no more increase of volume is noticed, tube *b* is again raised, until the level of the liquid in *b* and *a* is identical. The volume of displaced liquid in *a* then corresponds to the carbonic acid gas liberated, which is found by calculation (the temperature being noted), or by inspecting tables constructed for the purpose.

The apparatus is made and sold by Dr. Robert Muencke, of Berlin.—*Dingl. Pol. Journ.*

To Preserve Yeast.

FRESH yeast is covered with water and thoroughly agitated or shaken with it. It is then allowed to deposit, the supernatant water poured off, and the residuary yeast mixed with enough sugar to prepare a thick syrup which must be kept in full and well-stopped bottles.—*Pharm. Zeitsch. f. Russl.*

Fumigating Paper.

THERE are two kinds of fumigating paper in use, one which burns or glows when ignited, and another which does not burn, but is only carbonized.

Though the latter kind would be preferable, because a slow volatilization and combustion does not injure the fine aroma of certain substances as much as a higher heat, yet the precaution to place this kind of paper only on a moderately warm place of the stove is so generally disregarded that it is better, after all, to furnish only the combustible paper. In fact, most customers who call for fumigating paper are accustomed to the latter.

Before impregnating the paper with the aromatic substances, it must be prepared with a substance which will cause it to be readily carbonized or burned.

1. *Incombustible Paper.* — Dense, sized paper is saturated with a solution made from one part of alum and ten parts of distilled water, and dried.

2. *Combustible Paper.*—Very fine tissue or cigarette paper is saturated with a hot solution containing one part of nitrate of potassium in ten parts of water, and then dried. This process is several times repeated.

Either one of the above kinds of paper may be colored by adding to the solution of alum or saltpetre some water-soluble aniline color, such as eosine, brown, methyl-green, nigrosin (G. G.), indigo-blue, methyl-violet, silver-gray, phosphine, orange, etc.

The aromatic solutions with which the paper is next to be impregnated may be prepared after formulæ like the following:

1. Bretfeld spirit	1000	parts.
Myrrh	40	"
Benzoin	500	"
Oil of rose	6	"
2. Bretfeld spirit	750	parts.
Balsam of Tolu	200	"
Benzoin	100	"
Tonka bean	25	"
Oil of Vetiver	30	"

Bretfeld spirit is prepared thus:

Orris root	230	grammes.
Musk	0.15	"
Alcohol	2240	"
Oil of lemon	60	drops.
Oil of rose	60	"
Oil of neroli	90	"

[Another formula will be found in NEW REM., 1883, 54; but Mr. Vomacka says that, for the purpose of making perfumed fumigating paper by means of the formulæ previously given, this formula for Bretfeld spirit is specially modified.]

Digest the resinous substances with the Bretfeld spirit until they are dissolved, then add the essential oil, and decant the clear liquid after a few days.

Pour some of the solution into a flat-bottomed vessel, draw the prepared paper through it, allow it to drain over the vessel, and then hang it up on strings, in a warm place, to dry.

According to the author, the second formula above given yields a finer product than the first.—AD. VOMACKA, in *Der Seifenfabrikant.*

Calomel as a Rat Poison.—J. C., of Mt. Vernon, Ind., says that the addition of calomel to flour paste (about 1 part to 20) will effectually protect it from rats, for which it is a sure poison.

The Practical Uses of Peroxide of Hydrogen.

PEROXIDE of hydrogen, at one time a chemical curiosity known only in the chemist's laboratory, and for many years subsequently only employed in very limited quantities for a few special purposes, has of late years become one of the articles which are made on a grand scale for technical uses, particularly for bleaching fabrics and other articles. A few practical hints in reference to the best method of using will be found of general interest.

Bleaching of Animal Substances. Anything which is to be bleached by peroxide of hydrogen must be brought to such a condition that water will be able to thoroughly *wet* the substance; hence all fatty substances, and adhering impurities, must be removed, which is best done by a bath of soap or a 3 to 5 per cent solution of carbonate of ammonium. The prepared substances are then dipped into the peroxide of hydrogen solution, allowed to be perfectly penetrated, then taken out and slowly dried in a current of air, at a temperature not exceeding 20° C., (68° F.). As the water evaporates, and the peroxide of hydrogen becomes more concentrated, the process of bleaching progresses more energetically.

Bleaching of Hairs. The hairs should be digested with a 3 per cent solution of carbonate of ammonium at 30° C. (86° F.) for 12 hours, then treated with soap-suds, and finally again digested with solution of carbonate of ammonium. When thoroughly washed, they are placed into peroxide of hydrogen, which should previously be perfectly neutralized with ammonia.

Bleaching of Feathers. These are first digested with a ½-per-cent solution of carbonate of ammonium for 12 hours at a temperature of 20° C. (68° F.). Next they are gently drawn about in a lukewarm solution of Castile soap, and finally well washed in soft water. Hot or boiling liquids would injure the feathers. Instead of using alkalies, benzin or ether may be employed. The peroxide solution must be carefully neutralized and the bleaching must be done in earthenware or stone vessels, not in metallic or wooden vessels; when fully bleached, the feathers are exposed to a current of air of low temperature and repeatedly beaten. It has been proposed to dust them, while still damp, with some inert powder (talc, etc.), and to complete the drying afterwards. This has the advantage of preventing them from becoming brittle. A further improvement consists in dipping the bleached, and still damp feathers in alcohol, which coagulates the gelatinous constituents, and causes the feathers to have a very handsome appearance.

Bleaching of Bones and Ivory. Having been completely deprived of fat, either by superheated steam, or preferably by solvents, like carbon disulphide, ether, benzin, etc., they are immersed in the peroxide, previously almost entirely neutralized, and left there as long as necessary.

Bleaching of Sponges. The latter are well washed and cleaned in lukewarm water, and having been strongly expressed, dipped into the peroxide, previously completely neutralized with ammonia.

Emulsions.

C. S. HALLBERG, writing in *The Druggist*, says that the days of ready-made emulsions are numbered; the chief cause of their decadence being that the qualities which render an emulsion acceptable to the palate, and facilitate its assimilation, are incompatible with permanence and stability. The permanent character of many emulsions is due to their consistence—as illustrated in condensed milk and an emulsion of cod-liver oil with malt extract. Of the various emulsifying agents thus far recommended, acacia and tragacanth gums are probably most useful, the former being probably the most reliable, convenient, and least innocuous agent yet offered.

The late Prof. Prof. Proctor announced the following proportion of gum acacia as the one for forming a perfect temporary emulsion: "Mix intimately, in a perfectly dry mor-

tar, the oil with one-half its weight of powdered acacia; to this add, at once, one-half as much water as the combined weight of oil and gum, and triturate briskly until the mixture has assumed the color and consistence of a thick cream, which produces a crackling noise when the pestle is moved rapidly around the sides of the mortar." To this can be added any amount more of water or other desirable vehicle or medicament to bring the finished preparation up to the quantity prescribed.

If perfectly made, this emulsion will stand any degree of dilution with watery mixtures; in fact, its quality is proved when, by a large addition of water, the oil globules will not separate and collect at the top of the liquid.

Practice has demonstrated that the proportion of gum can be varied according of the nature of the oil employed, but the constant relation between the water used for the emulsion proper and the mixture of oil and gum must be scrupulously adhered to as insuring infallible results.

Fixed oils, rich in gum, such as copaiba, castor oil, etc., do not require as large an amount of gum as cod-liver oil, while for ethereal oils, such as turpentine, an equal amount of gum is requisite.

Preparation of Bismuth Absolutely free from Arsenic.

To prepare not too large quantities of absolutely pure metallic bismuth, and free from every trace of arsenic, Löwe proposes the following method in the *Zeitschrift f. Anal. Chem.*

Commercial bismuth is treated with a sufficient quantity of nitric acid to dissolve it, with the aid of heat. Any tin or antimony present will thereby be left behind. The clear solution is transferred to a flask and diluted with distilled water as far as it is possible without producing a cloudiness. The bismuth is then precipitated by soda solution, and when the precipitation is completed, one and a half times as much more of the soda solution added as had already been used. Next a sufficient amount of dense glycerin is added to re-dissolve the precipitate, or at least the greater part of it, for, if the metal was very impure, small amounts of iron, nickel, and similar metals will remain behind as oxides. Up to this point no arsenic has been separated because the arsenate of bismuth is likewise soluble in an alkaline solution containing glycerin. A few drops of solution of carbonate of sodium are now added, the liquid filtered off after twelve hours from any residue, and the filtrate mixed with four to five times as much grape-sugar as the original weight of the bismuth, the sugar being previously dissolved in eight times its weight of distilled water. If commercial grape-sugar is used, which is never pure and always contains lime, it is dissolved in six to eight parts of water in a flask, and solution of carbonate of sodium added until this ceases to produce a precipitate. The liquid is then heated on the water-bath, which will cause it to become quickly clear; it is then allowed to become entirely cold or may be cooled rapidly by placing the flask in cold water, a few drops of solution of soda are added, and the whole is set aside, well corked for some time. It is then filtered and added to the bismuth solution.

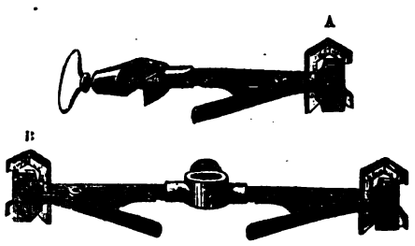
The mixed liquids are set aside, in a tightly closed flask, in a moderately warm and dark place, until any silver or copper present are precipitated, the former as metal and the latter as suboxide. The removal of copper may be recognized by the disappearance of all blue tint. The mixture is now again filtered. Next, the yellowish filtrate is poured into a flask which is set in a cold saturated solution of common salt, and heated for some time to boiling, whereby the liquid assumes a deep-brown color, and all the bismuth present is precipitated as gray metallic mud, while all the arsenic remains in solution. When the reduction is finished, the metallic precipitate is washed, until the wash-water has only a slight yellowish tint, whereupon it is mixed with a one-per-cent sulphuric acid, and finally completely washed with water. The drying of the finely divided metal must be hastened by placing it upon porous clay-tiles and passing a warm current of air over it, since it will otherwise become slightly oxidized in some places. After being thoroughly dried, the metallic powder is firmly pressed into a porcelain crucible, covered with lamp-black and, after the cover has been luted on, the metal melted. It will then be absolutely free from arsenic.

"Bromine-Sticks."

In our last volume (New Remedies, 1883, p. 297) we gave an account of a method patented by A. Frank to use bromine as a disinfectant. The inventor mixes the bromine with *kieselguhr* (a porous, siliceous fossil earth), which permits it to be handled with the greatest ease.

The same inventor now places this substance upon the market (through the chemical works of E. Schering, in Berlin) in form of thin sticks, which permit quite an exact measurement of any desired quantity of bromine, since the sticks contain almost exactly 1 gramme of bromine in each centimeter of length.

These sticks will probably be found useful also in chemical laboratories, if it is desired to oxidize some substance by means of small quantities of bromine.—*Pharm. Centralh.*, No. 8.



NEW BURETTE CLAMPS.

The clamps here illustrated have the double advantage that they may receive and hold burettes of any diameter, and so that the graduated scale may be easily read, but also that the burette may be quickly taken out and exchanged for another.

The holder consists of an arm fitting to the upright rod of a retort-stand in the usual manner. At its outer end it has an angular claw, the open side of which is closed by a plate pressed against it by a spring acting upon its handle. The inside of the claw and plate are covered with a thin layer of cork. The clamp is either single or double. By a pressure upon the projecting handle of the plate-piece, the burette is readily disengaged. When held in place, its front is not grasped by any part of the apparatus; hence the graduated scale is always fully exposed. This new burette clamp is made and sold by Dr. Robt. Muencke, of Berlin, and may be obtained here through dealers in chemical apparatus.

Prescription Difficulty (*Ind. Phar.*).

Chlorate of potassium	30 grs.
Borax	15 "
Tr. cubebs	2 drs.
Mucilage of acacia	2 oz.

Sig. Dose, a teaspoonful.

It has thus far gelatinized on each occasion when its preparation has been attempted.

Tolu Rock and Rye (*Ind. Pharm.*).

Good whiskey	1 gallon.
Rock candy	4 pounds.
Gum tolu	2 ounces.

Put the whole into a two-gallon jug, set in a warm place, and agitate several times a day until the candy is dissolved. Then strain through flannel or coarse muslin.

[The proportion of sugar appears to us larger than good whiskey will dissolve, and it may be remarked, in passing, that it is reported that the original "rock and rye" contained figs among its ingredients.—Ed. Am. Drug.]

Wizard Oil (*Ind. Pharm.*).

The following mixture produces something resembling this nostrum:

Oil of cloves	½ oz.
Water of ammonia, Ether, Oil of turpentine, of each	½ "
Chloroform	1 dr.
Camphor	2 drs.
Oil of sassafras	1 oz.
Alcohol, sufficient to make	1 pt.

Mix, and dissolve.

Florida Water (*Drug. Circular*).

Oil of lavender	4 fl. oz.
Oil of bergamot	4 "
Oil of neroli	2 fl. dr.
Oil of orange	4 "
Oil of clove	1 "
Pure musk	4 grains.
Cologne spirit (96%)	1 gallon.
Tincture of Tonka bean	sufficient to color.

Macerate for 15 days, and filter through paper.

St. John Long's Liniment (*Med. Times*).

The following is the formula employed by Jacob Hecker, Ph.G., the apothecary of the Pennsylvania Hospital, Philadelphia: The yolk of 8 eggs; 24 fl. oz. of turpentine; 16 fl. oz. of acetic acid, and 24 fl. oz. of water. The yolks, with a small quantity of the water, are to be briskly shaken in a gallon bottle, then the turpentine is to be added in small portions with continued shaking, then the acid, and finally the water are added, with similar shaking, until the mixture is completed. A drachm of good oil of lemon to each pint is an improvement.

Sorel's Cement for filling cavities in teeth is made by adding, rapidly, deliquescent chloride of zinc to enough oxide of zinc to make a thick paste, and applying it immediately.

Phosphate of Zinc Cement, said to be more durable and less irritating, is made by mixing oxide of zinc with syrupy phosphoric acid made by boiling the officinal concentrated phosphoric acid until the temperature rises to 215° C. (419° F.).

Lime-Juice and Glycerin.

Lime, or lemon-juice	8 ozs.
Rose-water, Elder-flower water, Alcohol, of each	2 "
Glycerin	3 "
Oil of lemon	30 drps.

Heat the lemon (or lime) juice in a porcelain dish to nearly the boiling point. When cool add the aromatic waters and the alcohol, and mix the whole well together. After 24 hours' repose, decant or filter, and then add the glycerin and oil of lemon with thorough shaking.

Dr. Syke's Catarrh Cure.

Mr. D. S. Sager, chemist, of Brantford, Canada, writes us that an analysis of a package of this substance showed that it consisted of between 66 and 67 per cent of chlorate of potassium, with powdered licorice-root and a small amount of brown powder not analyzed. The liquid is made by adding the powder to a stated amount of water, filtering out the sediment, and flavoring with wintergreen.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 4. WHOLE No. 118.

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

APRIL, 1884.

SUBSCRIPTION PRICE per year, ... $1.00

SINGLE COPIES, ... 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & CO., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

The Alcohol Tables of the U. S. Pharmacopœia.

MR. GUSTAVUS PILE, of Philadelphia, states that the tables of Hehner given in the U. S. Pharmacopœia are not correct enough, since "alcohol having a specific gravity of 0.8157 has been regarded as 95 per cent for so long a time that it would seem to be difficult to interpret it any other way; but, by the adoption of the tables of Hehner, such will be the case, and 95 per cent will have a specific gravity of 0.8161, and so on." Mr. Pile points out that Hehner's tables differ here and there materially from those of Tralles, and that they might mislead one in determining the value of alcoholic mixtures.

It is quite true that the United States Government determines the duty on alcohol by Tralles' scale. The latter, however, has never been calculated to such a detailed range as Hehner has done. In view of the general utility of a table calculated to four decimals for every specific gravity between absolute alcohol and pure water, the Committee of Revision adopted Hehner's tables *in toto*, specifying, however, in the title expressly "Alcohol, according to Hehner." It would have been impossible for the committee to find the time to calculate a similar table, based on Tralles' scale, without delaying the appearance of the U. S. Pharmacopœia too long. For all practical purposes, Hehner's table agrees well enough with Tralles', and it is yet a question, to be decided hereafter, whether Tralles' scale is really correct in every respect. At the same time, Mr. Pile has pointed out that Hehner's tables contain certain undoubted errors, for instance, in using two different values to denote the specific gravity of water, namely, that at 60° F. in the beginning, and that at 39° F. at the end.

We are now indebted to Mr. Pile for a new table calculated on the basis of Tralles, and carried out to the same detail as Hehner's. The calculation of this has cost the author "considerable time," as we can readily believe. No doubt, had the Committee of Revision been in possession of this table, it would probably not have selected that of Hehner.

When the committee will have occasion to again discuss the subject of tables to be appended to the pharmacopœia, it will, no doubt, take such action as will remove the apparent discrepancies between the Custom-House standard and that adopted by the U. S. Pharmacopœia.

Colleges of Pharmacy and Legislation.

ONE of the obstacles met with in securing the enactment of laws regulating the practice of pharmacy has been the desire of some of the colleges of pharmacy to include a provision whereby graduates in pharmacy shall be licensed in virtue of their holding a diploma and without the necessity for submitting to an examination by a State board of pharmacy. Thus far such efforts have proved, in the main, unavailing, and there seem to be excellent reasons why such exemption should not be granted.

The history of medical schools in this country, as well as elsewhere, shows that all such private corporations cannot be trusted to maintain a high standard of qualifications. Several years ago, when medical schools were few and physicians practising without diplomas numerous, the general character of the requirements for graduation were sufficient to warrant the opinion that most medical graduates were fairly qualified to practice, but no limit has been placed upon the increase of such schools, and since the mere possession of a diploma granted by schools in which the teachers were also the examiners was all-sufficient to secure a license to practise, the character of many schools deteriorated until of some it might well be said that they were mere "diploma mills." What is to prevent a similar state of affairs at some future day if the mere possession of a diploma from some pharmaceutical college is to be a legal evidence of fitness? Already in some States, the medical profession, as a matter of self-protection and in the interests of the public, have secured the enactment of laws which vest the power of licensing to practise in a board which is independent of the colleges, and the result has been to convert the colleges, so far as those States are concerned, into merely teaching bodies. An effort to accomplish the same end is already on foot in New York State, and with some promise of success. With this experience in the medical profession, it is no time at the present day to repeat the error among pharmacists, and we hope that the schools already established will appreciate what seems to us self-evident, that the best way to secure their own prosperity and prevent the organization of poorly equipped competitors who will surely underbid them in fees, is to urge the enactment of laws which shall take no account of the existence of pharmaceutical schools, but subject every applicant for a license to a fair examination. It will then remain optional with each one whether to secure his training in or out of a school of pharmacy. It is quite evident that many will prefer the former course. It is also most likely (circumstances permitting) that such pupils will resort to the school whose graduates succeed best in passing the examination of the licensing board. In other words, old and well-tried schools will flourish and new ones be discouraged. As the requirements are rendered more stringent, classes will increase in size and the colleges will, moreover, escape the opprobrium which has been borne by the medical schools, of having their diplomas counted as so much paper because of the difficulty of knowing what schools are good and what schools are fraudulent.

F. A. C.

Drug-Raising in California.

THE following, from one of our medical exchanges, was not properly accredited by our copyist. It refers to a subject just now of special interest to pharmacists, and we therefore insert it. The writer does not mention the obstacles in the way of medical men who undertake this work, but we infer them to be such as belong to their practice. It would be of interest to many readers if some of our California readers could add something to our knowledge of this subject.

Dr. L. D. Morse, of San Mateo, Cal., writing upon the above subject, says that he doubts if it is practicable for young or old physicians, individually, to undertake the expense and special care necessary for raising medicinal herbs, etc. He thinks, however, that more of the drugs now imported should be raised in this country, and he states that an association has been formed in California to undertake the cultivation of a drug farm. He writes: "In many of the interior valleys of California, rhubarb may be grown, probably of as good quality as is produced anywhere else in the world. So also, ipecacuanha, ginger, and a score of other valuable drugs now imported. Vanilla beans can, undoubtedly, be grown here. Even if the best varieties should be grown under glass, artificial heat would not be needed, and the high price they command would yield profitable results. Licorice is already quite successfully grown in at least one locality in this State. In the experimental grounds of the State University, at Berkeley, cinchona trees are growing. They are not considered really successful, but there are other localities in the State, with climate and soil quite different, where they may prove quite successful. The camphor tree at Berkeley, I believe, promises very well."

OUR friends, Prof. J. U. Lloyd and Mr. C. G. Lloyd, are about to publish, in three-monthly numbers, an extensive work on the "Drugs and Medicines of North America," with botanical, pharmacognostic, and other illustrations, and with an exhaustive text, based upon all that has previously been published, and embodying their own observations. From what we have seen of the work, it will fill a long-felt want, and will become a standard authority. Intending subscribers (one dollar per year) should apply to the editors at once.

SINCE the publication of our remarks in March relating to the coalition of pharmaceutical journals in this city and their alleged publication in the interests of the Standard Oil Company, we have been informed by Messrs. Root and Allison that no relations whatever exist between the Standard

Oil Company and the company owning *The Oil, Paint, and Drug Reporter*, *The Weekly Drug News* and *The Druggists Circular*. Mr. Allison has given us the history of his purchase of several of the publications referred to, some of which, on closer acquaintance, prove to have been more imposing in name than in the extent of their circulation, and Mr. Root has related the history of *The Weekly Drug News* and *Oil and Paint Review*, and the purchase of the *American Pharmacist*. The career of *The Oil, Paint, and Drug Reporter* as an "anti-standard" publication, and of *The Oil and Paint Review* and *Weekly Drug News*, as its independent rivals. Finally, the circumstances of the union of these with the *Druggists Circular* were told, so far as appeared needful, to show that no connection, as alleged, existed between the publishing firm and the Oil Company.

It would therefore seem that an injustice was done to our *confrères* in publishing a report alleging their subserviency, individually or collectively, to the Standard Oil Company, and in the inference that its interests, rather than those of the drug trade generally, were in future to be consulted by them.

Regarding the possible union in the future of the three journals into one, nothing, they say, resembling it is entertained, each having laid out for it a separate sphere, as announced when the business combination was first made.

Removal of a Quinine Factory to Italy.

UNDER date of March 21st, Messrs. Powers & Weightman, of Philadelphia, issue the following circular:

"For the information of our friends who are interested in the matter, we would state that during the rebuilding and reappointing of our quinia manufactory here we have made arrangements that no break of importance shall occur in the production of our article, by availing ourselves of facilities that have been offered us of making it in Milan, Italy.

"To this point we have already sent some of our stock of bark, which fortunately escaped the fire, and the remainder will follow immediately. All this bark had been carefully selected by ourselves.

"One of the members of our firm, Dr. John F. Weightman, who has during several year past had charge of this branch of the business, is already on his way to supervise the manufacture in Milan, whence the product will be brought to our establishment here.

"All our arrangements have been carefully made with the view of continuing the high standard of our sulphate of quinia maintained for so many years past; so that users of it may feel the same confidence in our brand that it has so long enjoyed.

"During this temporary arrangement we shall be re-erecting the works that were burnt, and, in addition, will prepare a new building on the grounds belonging to our out-of-town laboratory, where a part of the quinia manufacture will be conducted, so that the risk of accident will be divided between two places.

"In the mean time, with our stock of sulphate quinia remaining, and prompt receipts of our Milan product, we do not expect any interruption of our ability to supply our article.

"With our new appointments for sulphate morphia about completed, we expect, when fairly under way, to have an increased out-turn.

"In our other preparations we do not think there will be any appreciable interruption to our supply for any length of time."

Dr. Weightman with his family sailed for Europe in the Werra on the 19th of March, and it is said that the first shipment of bark amounted to 3,000 bales. Owing to the absence of duty on sulphate of quinine and the low price of labor and chemicals abroad, Powers & Weightman will very likely, by this arrangement, be enabled to continue their quinine manufacture at greater advantage to themselves.

The Milan works, said to have been leased by them, are the property of Alexander Boehringer, who has for some time past been the largest quinine producer of the world, his works being located at Manheim in Baden, in Paris, and in Milan.

It has lately been said that these two firms produce more than one-half of the quinine now manufactured, the total output being between 4,000,000 and 5,000,000 ounces per year, and more than one-third of the whole is consumed in the United States.

The U. S. Pharmacopœia in Massachusetts.

THE *Boston Medical and Surgical Journal* of March 20th says that it is reported in the daily papers that a majority of the Legislative Committee on Public Health, apparently influenced by certain wholesale druggists of that city who have been prosecuted by the State Board of Health, Lunacy, and Charity for selling adulterated drugs, intend to report a bill amending the present adulteration act. They would make one of the several excellent commentaries, which have been published as private enterprises, the legal standard in Massachusetts for all the medicines mentioned therein, instead of the United States Pharmacopœia itself, upon which it is based. The editor goes on to show how irrational such a course would be, in view of the fact that such a standard is liable to frequent changes; establishes foreign standards in place of the single one adopted by the medical and pharmaceutical professions of this country, and, what is more to the point, establishes as a standard a work which in at least one instance cited (Tr. of Opium) furnishes no definite standard of strength whatever.

In conclusion, the editor of the *Journal* says:

"Out of such a large selection of standards, more or less indefinite, according to the various pharmacopœias—for these several foreign pharmacopœias would then become law in Massachusetts, besides many an unofficinal formula—it would become wellnigh useless to attempt any enforcement of the law.

"This is just the end which is sought for by those who have felt the disadvantage of the present more definite standard. Having rid themselves of this trouble, they are very willing that the rest of the act should remain unaffected, as it would have been rendered perfectly harmless against adulterations. No valid reason can be given for the desire to make the commentary the legal superior of that upon which it comments. Surely any private commentary upon a statute is not superior to the statute itself."

THE subject above referred to was discussed in the Section for Clinical Medicine, Pathology, and Hygiene of the Suffolk District (Boston) Medical Society at a recent meeting, and it is a pleasure to notice that Ex-President Colcord, of the Amer. Pharm. Assoc., President Canning, Vice-President Bartlett, and Prof. G. F. H. Markoe, of the Massachusetts College of Pharmacy, and W. C. Durkee, Ph. G., were present by invitation, and contributed to the discussion in a manner that was well appreciated.

Druggists and Doctors.

WE have on several occasions suggested that pharmacists are greatly at fault in not making more use of their opportunities for discussing questions of mutual interest to both professions in medical societies and journals. To cite a recent instance: A committee of New York and Brooklyn pharmacists, of undoubted skill, has for many months been at work on a series of unofficinal formulas which are to be recommended to the physicians of the two cities for their adoption, to be used by them in prescribing, in place of the great variety of similar preparations emanating from as many different manufacturers. The completed work is now about to be published, but no step has been taken to enlist the interests or sympathy of the medical profession as a body, and, as a consequence, it must be some time before the existence of such a work can be generally appreciated by physicians.

It would, in our estimation, have been much wiser to have enlisted the co-operation of the representative medical societies at the outset, and, perhaps, to have requested the appointment of medical members of the committee. It is doubtless true that little aid could have reasonably been expected of them in the actual work of preparing formulas, but at least this would have accomplished one thing, and that is the one which must be aimed at, and the failure of which will defeat the object of the work, viz., the sympathy and co-operation of the prescriber. If doctors are to go on prescribing So-and-so's pills in preference to the ones made by his local pharmacist, what good will the work have accomplished?

As it is, the committee have prepared a work which will be for sale at a price which will limit its circulation to a few physicians who are specially interested, and who, as a rule, require very little reformation of habits in this direction. Would it not have been far better to have constructed, at first, a smaller number of formulas, paid for their publication out of a fund raised conjointly by doctors and druggists, and printed a sufficient number of copies to place one in the hands of every member of the two county medical societies and every registered pharmacist in the two cities? It would have been comparatively easy, with the aid of the medical members of the committee, to have secured such action on the part of these two great medical societies as would commend the formulas to the attention and confidence of their fellows.

IN connection with the article on "Reduced Iron," on page 66, it will interest certain of our readers to know that, according to recent reports from Germany, Dr. Rundspaden, a manufacturing chemist at Hamelin, whose reduced iron enjoyed a high reputation for purity, has lately absconded, leaving numerous creditors.

Correction.

IN formula of Nepenthe in our last number, p. 53, read: Sherry ℥iv., instead of ℥i.

On p. 58, first column, line 44, strike out the word "not."

The Ohio Pharmacy Act, we are informed by a telegram from Cincinnati, has been passed by the Legislature.

Rapid Filtration.

I HAVE devised a more simple means for inducing rapid filtration in analytical work than any I have yet seen mentioned.

The filter is prepared, and supported at the point by a cone, as required by the suction methods, in a funnel, which it is best to have with its edges ground level, and held in any firm support.

The device is simply to have a glass plate about 6 inches in diameter and 1 inch thick, which has a ¼-inch thick soft rubber disc of the same size as the glass cemented to its surface. There is a hole through the centre of the glass and rubber plate. This heavy plate is large enough to cover any size funnel likely to be used, and will make a tight joint by its rubber side with the funnel, either through its own weight or if pressed down by the hand. Through its central hole air is forced in from a rubber tube connected with one of Fletcher's excellent foot-bellows, to any desired pressure. To prevent the air thus blown in from agitating too much the fluid contents of the filter, a square piece of very thin sheet-rubber, something larger than the hole, is fastened over it by its four corners, having pins passed slantingly through them into the rubber plate beneath it. This prevents the air from being blown straight down into the filter but makes it spread out sideways.

This method leaves free and easy access to both the filtrate and the filter by the simple lifting off of the plate from the funnel, is simple of application, and not likely to be out of working order when wanted for use. The pressure is under perfect control.—B. F. DAVENPORT, State Analyst, Boston, in *Chem. News*, Feb. 1st.

The Odorous Principle of Hyoscyamus.

ACCORDING to Gerrand, the strongly and disagreeably odorous principle of Hyoscyamus resides in a substance which has so far not been obtained entirely pure. but only in form of a bright-yellow, slimy, and semi-cystalline mass of an acid reaction, an acid and sharp taste, soluble in alcohol, ether, chloroform, and disulphide of carbon, and volatilizable by heat.—*Pharm. Journ.*

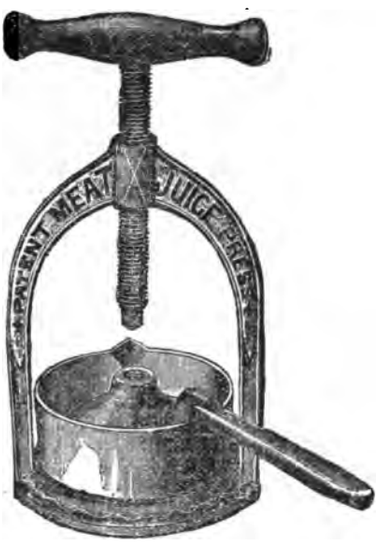
Reissner's Vaccine Powder.

DR. O. HAGER (*Berl. Klin. Wochenschrift*) says that vaccination with Reissner's powder is the best of all vaccine methods. The technical difficulties in making this powder are only very small, and may very readily be surmounted. The pustules of calves, five days after vaccination, are nipped off at the base by pincers, and the part of the pustule on the pincers is scraped with a lancet as long as it yields a fluid lymph. In this manner is obtained a lymph which is very tough, and contains cells of the rete Malpighii, to which Hager gives particular weight. The scraped mass is spread on glass and placed immediately in a sulphuric acid exsiccator, in which it is left one or two days; afterwards the dry powder is ground in a mortar, and the mass thus prepared is kept in the exsiccator till it is used. Immediately before use it is moistened with water, glycerin, or a disinfectant. Hager observed that, with an addition of 4 per cent of carbolic acid or of 1 per cent of sublimate solution, the powder retained its efficacy. The great advantage of Reissner's powder is the ease with which it is prepared. Every doctor in the country can prepare his own supplies of lymph. The cost is also very small, as from one calf from 2,000 to 3,000 children can be vaccinated.—*Chem. and Drug.*

Ammonio-Ferrous Sulphate as a Reagent for Nitric Acid.

AUSTEN and CHAMBERLAIN recommend the use of ammonio-ferrous sulphate, in place of the plain ferrous sulphate, in the well-known reaction for nitric acid, which may be performed in several ways, for instance, by adding to a strong solution of ferrous sulphate an equal volume of strong sulphuric acid, pouring a little of the cold mixture into a test-tube, and carefully pouring on top a little of the solution suspected to contain nitric acid. If any of the latter is present, a brownish or brownish-black zone will be produced at the point of contact of the two liquids.

If the ammonio-ferrous sulphate be used in these reactions, the mixture may be kept on hand without spoiling, and it yields equally sharp results. Should the double salt not be readily obtainable, the two salts, sulphate of ammonium and ferrous sulphate, are dissolved in water, in the proportion of their molecular weights, and the solution, mixed with two per cent of concentrated sulphuric acid. Otherwise, the reagent is prepared by dissolving twelve *gm.* of ammonio-ferrous sulphate in one hundred *cc.* of water, with two *cc.* of concentrated sulphuric acid.



Osborne's Meat-Juice Press.

THE difficulty attending the extraction of the juice from rarely-cooked meat often prevents its use when it might be of service in cases of feeble digestion. A common lemon squeezer is sometimes used for this purpose, but nothing has yet been found which accomplishes the work as easily and perfectly as the little apparatus invented by Mr. H. F. Osborne, of Newark, N. J., and illustrated above, since it combines the action of a screw press with that of a grinding mill. The bottom of the cup and the under surface of the follower are provided with grooved surfaces somewhat like the grinding surfaces of a coffee mill, and when a piece of broiled meat is placed between them and pressure made by means of the screw, a few movements of the handle to and fro quickly break up the fibres of the meat and the pressure of the screw rapidly exhausts its juices. During the coming season, when digestive disturbances among children are likely to be so frequent, these convenient appliances should find a ready sale.

Solvent for Gum-Resins.—A solution of 7½ per cent of caustic lime has been used for ammoniacum (1 in 4), myrrh (1 in 5), guaiacum (1 in 7), opium (1 in 10), aloes (1 in 15), and assafœtida (1 in 15). These solutions mix with water without precipitation.—*Pharm. Centralhalle.*

Vehicle for Sodium Salicylate.—J. Solis Cohen recommends equal parts of simple syrup and water, or of simple syrup and solution of citrate of ammonium, of the British Pharm., flavoring with oil of wintergreen.—*Med. and Surg. Rep.*

Licorice Incompatible with Acids.—The following prescription gave a black sediment:

Extract of hysocyamus	10 grains.
Sulphate of morphine	2½ "
Muriate of ammonia	3 drachms.
Glycerin,	
Syrup of squill, of each	1½ ounces.
Fl. ext. of licorice, q. s. to make	4 ounces.

The precipitate probably consisted of glycyrrhizin thrown down by the acid of the syrup of squill, and its separation deprives the mixture of the sweetening property which belongs to this substance. Alkalies, which would redissolve the glycyrrhizin, might be used to neutralize the acidity of the syrup, if done with the consent of the prescriber.—*Drug. Circ.*

Keeping Prussic Acid.—A Detroit correspondent speaks of a vial which had for several years contained dilute hydrocyanic acid which had undergone no change in color. The vial had been covered to the lip with an opaque varnish, and the cork, which was inserted well down into the neck, still further aided in the exclusion of light.—*Ibid.*

Syrup of Violets.—The French Codex formula consists of:

Violet petals (cultivated), fresh and cleaned	1,000 parts
White sugar	4,000 "
Distilled water	sufficient.

Wash the petals with six times their weight of distilled water warmed to 45° C. (113° F.), and strain with light pressure, through cloth washed with distilled water. Transfer to a block-tin vessel and pour on enough boiling distilled water to make 3,000 parts by weight. After twelve hours strain with pressure, and obtain 2,120 parts by weight of infusion. Allow this to settle, decant into the same block-tin vessel, and dissolve the sugar in it by means of a water-bath. Strain through flannel.—*Ibid.*

A New Chewing-Gum.

Venice Turpentine	100 parts.
American Thus	75 "
Yellow Wax	50 "
Bals. Tolu	10 "
Bals. Peru	5 "

Melt together and add, in fine powder:

Cinnamon (Chinese)	30 parts.
Chocolate	50 "
Red Sandal Wood	10 "
Myrrh	5 "
Galangal	5 "
Ginger	5 "
Cardamom	2½ "

(Parts by weight.) Mix and roll out, when cool enough, into sticks, or make into any suitable form.—*New Idea.*

Preserving Steel from Rust.—Professor Omstead, of Yale College, is said to recommend the following: Melt slowly together six or eight parts of lard with one of resin, and stir the mixture until it is cool. This will preserve bright steel surfaces if rubbed on them and they are clean and dry, but it will not arrest oxidation which has already begun. [For a number of years surgeons in the U. S. Navy have been required by the regulations of the Bureau of Medicine and Surgery to cover the polished steel of surgical instrument with a thin coating of mercurial ointment. This proves an efficient protection even on long voyages.—ED. AM. DRUGGIST.]

Tin as a Contamination of Preserved Fruits and Vegetables.

UNGER and Bodländer have examined a number of cans of preserved fruits and vegetables, with a view of ascertaining the quantity of tin which had combined with the latter. The investigation was begun in consequence of a married couple who had eaten of preserved asparagus, being taken ill with symptoms of some metallic poisoning.

The authors first examined preserved asparagus, and found in one tin containing 378 gm. of solids and 140 gm. of liquid, 0.166 gm. of tin; in another box containing 325 gm. of solids and liquids, they found 0.041 gm. of metallic tin with traces of lead. The liquid of the last-named sample, however, after filtration, was found free from tin. Preserved peas were found to contain 0.003 gm. of tin (with traces of lead) in 425 gm. of the preserved mass.

The assay of tin in the liquid was performed in the following manner: The liquid was evaporated and the residue ignited, if necessary, with final addition of nitrate of ammonium. The ash was carefully mixed in a porcelain crucible with six times its weight of a mixture of equal parts of bicarbonate of sodium and sulphur, and heated until the whole was melted. The mass was then dissolved in water, filtered, the filtrate acidulated, stirred, and set aside until no more odor of hydrosulphuric acid was perceptible. The sulphide of tin was then filtered off, converted into oxide by ignition, and weighed.

It was found, as might have been anticipated, that the asparagus, etc., in contact with the sides of the can, contained the most tin. Since the tin could not be extracted from the solid vegetables either by boiling with water or by acetic acid, but only by means of at least a three-per-cent hydrochloric acid, it is probable that the tin was present as a stannous oxide or salt.

Preserved fruits were likewise examined, and it was found that strongly acid fruits had absorbed notable quantities of tin, while the liquid portion remained uncontaminated.

The authors found that the eating of such contaminated preserves is not usually followed by acute morbid symptoms; the chief result is a slight inflammatory or caustic action of the digestive tract. Nevertheless, a caustic effect is by no means impossible, and some portions of the metal are actually absorbed. It may be safely stated that preserves contaminated with tin, if eaten continuously, are liable to produce injurious effects.—*Pharm. Rundschau* (Leitmeritz.)

Tannate of Mercury.

DR. S. LUSTGARTEN reports on the chemical and physical properties of tannate of mercury (mercurous tannate), prepared in the laboratory of Prof. E. Ludwig, and used by Prof. Kaposi in various syphilitic affections.

The new preparation appears in the form of a dark-green, odorless and tasteless powder, containing 50 per cent of mercury. It is not soluble without decomposition, is not materially affected by diluted hydrochloric acid, but easily so by even highly-diluted solutions of alkalies (ammonia, potassa), and of alkali carbonates, the effect of the reaction being that a magma consisting of very minute particles of mercury separates after a short time. These particles are so small that a large portion of them, when viewed under a microscope, is seen to exhibit the phenomenon of the so-called molecular movement. Whether this reduction process occurs also in the organism under the influence of the alkaline reaction of the intestinal juice, and whether mercury can thus be absorbed through the mucous membrane of the intestines in the same manner as it is absorbed when rubbed into the skin—these are questions which the reporter was not able, as yet, to answer. Nevertheless, a rapid introduction of mercury into the circulation could always be observed, it being always found in the urine twenty-four hours after having been administered.

The new preparation was given *internally* in doses of 0.1 gramme (1½ grains) two or three times per day. In spite of this relatively large dose, all disagreeable symptoms, so often accompanying the use of mercurials, were absent. On the other hand, the results obtained with ten cases of syphilis in various stages upon which it had been tried—among them difficult and obstinate relapsing forms, such as small papular, pustulous syphilides—were so rapid and favorable, that the new preparation may be safely placed by the side of the best mercurials so far known, including mercurial ointment.—*Zeitsch. d. Oesterr. Apoth. V.*, No. 5.

The Preparation of Absolutely Pure Sulphate of Quinine.

IN connection with an article by Dr. de Vry, published in this journal elsewhere, and treating of Hesse's test, the author mentions the fact that recrystallization of commercial sulphate of quinine cannot remove altogether, though it may diminish, the accompanying cinchonidine. Even three recrystallizations were unable to accomplish this.

The most practical method of preparing absolutely pure sulphate of quinine is to start from the so-called bisulphate of quinine, which can indeed be obtained, in a chemically pure condition, from different quinine factories, according to Dr. Vry's experience. One part of this salt is dissolved in forty parts of hot water, and to the boiling solution enough solution of soda is added until very sensitive blue paper is just barely rendered faintly red. The pure, basic sulphate of quinine will then separate from the solution, upon slow cooling, in handsome, transparent needles.—*Nieuw Tijdschr. v. d. Pharm.*, Feb.

Toxicological Notes.

THE following notes on certain poisons have been collected by Ad. Vomácka and published in the *Rundschau* (1883, No. 33):

Opium. In one case where all the usual remedies failed, the patient was saved by introducing 12 gm. (about 220 min.) of undiluted tincture of capsicum. In another case, very good results were obtained by a rectal injection of 4 gm. about 75 min.) each of tincture of capsicum and water of ammonia, in coffee.

Chloral. A hypodermic injection of strychnine has been recommended.

Belladonna and Stramonium. Inhalations of chloroform are reported effective.

Strychnine. Paraldehyde is recommended. This overcomes the toxic effects in doses which, by themselves, would be too small even to produce narcosis. There is no special antagonism between the two drugs.

Iodine. Use a solution of 1 part of hyposulphite of sodium in 75 parts of water. After the first danger is over, give starch and milk.

Benzin and Nitrobenzol. According to Pabst and Neumann, benzin acts like ether, chloroform, and still more like alcohol. Workmen who are exposed to vapors of benzin, are liable to become excited, intoxicated, partly demented, etc. The effect of nitrobenzol, if introduced into the organs of digestion or respiration, makes its appearance after some delay, perhaps after an hour, in form of general convulsions, cramps, and isolated contractions of certain muscles. Of 44 cases, 14 ended with death. Nitrobenzol alters the blood-corpuscles, which lose their form, while hæmoglobin is changed to hæmatin. Benzin acts upon the brain; nitrobenzol more upon the nervous centres.

Aconite. Baker has reported the case of 4 boys who chewed and swallowed small pieces of aconite root. In 15 minutes, all of them labored under acute symptoms of poisoning. When brought to the hospital, they were given an emetic of sulphate of zinc and wine of ipecac; and after the stomach was evacuated, cognac and coffee was administered. Next day the symptoms of poisoning had disappeared in three of the patients, one of them only suffering from intense headache.

Overcoming Antipathy towards Chloroform.

SOME patients have a particular antipathy against the odor of chloroform, and begin to struggle when about to be placed under its influence. To overcome it, Prof. Nussbaum, of Munich, recommends to put 10 or 12 drops of oil of cloves upon the towel, or other apparatus used in administering the chloroform.—*Deutsch. Med. Zeit.*

Extract of Wheat Flour.*

THE dried extract of wheat flour, which is known as Gehe's, is prepared in the following manner:

Wheat Flour	100 parts.
Malt, ground	100 "
Pure Bicarbonate of Potassium	2.5 "
Water, a sufficient quantity.	

Mix the wheat flour with 200 parts of water to a paste, then add the malt and 800 parts of water, and heat to a temperature of 65° C. (149° F.) under constant stirring during two and a half to three hours until a sample, in a test-tube, when covered with a layer of tincture of iodine, no longer shows the presence of starch. Then add the bicarbonate of potassium, previously dissolved in water, heat the whole to 100° C. (212° F.), and keep it at a full boil for about then minutes. Then allow to settle, siphon off the clear liquid, drain the residue on a strainer, and evaporate the liquid in a vacuum apparatus to a thick extract. Finally evaporate the latter in small portions to dryness.

The product is a light yellowish to reddish-brown, somewhat hygroscopic lamellar powder, readily soluble in water to a nearly clear liquid. It has an agreeable, sweet taste and is rich in protein bodies.

The directions for making this valuable preparation are, in the main, the same which were published by Liebig, about twenty years ago, for making his "infant's soup." But, while the latter was in liquid form, quickly becoming acid and not keeping over twenty-four hours, and moreover its preparation on a small scale was not always successful, the process of Gehe & Co., of Dresden, furnishes a preparation of uniform quality and of almost unlimited keeping qualities, if properly preserved. It differs from the so-called "infants' flour (kindermehl)," which is much in use, by not containing either milk, eggs, sugar, or undissolved starch.

The same firm also furnishes a pulverulent extract of malt of a whitish, and a pulverulent extract of legum-

* Extract from the following *important work*, containing descriptions, definitions, working formulas, methods of assaying and testing, etc., for all important medicinal crude substances, chemicals and pharmaceuticals not officinal in the new German Pharmacopœia. The title is: *Supplement zu der zweiten Ausgabe der Pharmacopœia Germanica. Für Apotheker, Aerzte, Medicinal-Beamte, Drogisten, von* DR. B. HIRSCH, *Apotheker*, 8vo. Berlin, 1883.

inous seeds, of a yellowish color, both prepared by a process similar to the above. The chief constituents of these three dietary substances, so valuable both for children and convalescents, are the following (according to E. Geissler).

Constituents.	Extract of Wheat Flour.	Malt.	Leguminous Seeds.
Carbohydrates, soluble	86.50	88.50	77.00
Among them sugar.	25.06	32.02	28.08
" " dextrin	60.05	56.00	47.05
Carbohydrates, insoluble	0.61	0.42	2.00
Protein bodies	6.53	7.02	13.45
Salts	2.10	1.64	5.30
Phosphoric acid	0.81	0.55	0.88
Fats	0.20	0.22	0.30
Water	4.06	2.02	1.95

Eau de Cologne.*

From Dr. Hirsch's new Supplement to the German Pharmacopœia (see page 73), we quote the following passage:

Good Eau de Cologne (Spiritus odoratus) should have an agreeable, refreshing and *lasting* odor in which no single constituent should be prominently perceptible. Nevertheless, after the other aromatic constituents have passed off, the presence of good oil of neroli usually remains, which is not objectionable. After the oils are dissolved, the alcoholic solution should be *diluted* so far, that a further small addition of water will quickly cause opalescence. In this way the real perfume comes out more prominently and is less obscured by the alcohol. The dilution may be effected by *water* to incipient opalescence, or in place of it, a little *fresh milk* may be used. The latter incorporates a small amount of fat into the liquid, and the presence of the fat causes the odorous substances to be less rapidly volatilized than would otherwise be the case. Eau de Cologne should also be entirely or, at least, nearly colorless, for which reason many subject it to distillation. This has, however, the disadvantage that a considerable portion of the oils fails to pass over, and is therefore wasted. A principal condition to obtain a good preparation is, that the oils and the alcohol must be the very best that can be obtained. The following is a synopsis of some formulæ:

Constituents.	Russ. Pharm.	U. S. Pharm.	Schenkidem.	Wilms.	Hirsch.
Oil of Bergamot	18	16	90	15	18
" Cloves	1		1.5		1
" Cinnamon	1		1.2		1
" Orange	2				2
" Lemon	4	8	30	8	2
" Neroli	2	4		4	4
" Lavender	4	4	15	4	2
" Rosemary	2	8	1.5	8	2
" Thyme	2		0.8		2
Tinct. of Musk	1		3		1
Alcohol	2400	800	3780	1000	1250
Acetic Ether		2			
Dist. Water		158			
Orange Flower W.			180		
Rose Water			180		
Fresh milk					140
Total	2437	1000	*	1039	143

*Macerate eight days, then distil off 4,000 parts.

Analysis of Condensed Milk.

It will be of interest to many of our readers, who handle or have to examine condensed milk, to be able to compare the results of an analysis made by Professor Fresenius with those made by chemists in this country and published in this journal some years ago.

Professor Fresenius found a sample of Swiss unsweetened condensed milk to contain the following constituents:

Butter	10.87
Albumen	1.27
Casein	10.65
Milk sugar	14.26
Inorganic substances	2.36
Total solids	39.41
Water	60.59
	100.00

According to report, the factory where this milk is condensed, is very particular in not allowing the milk to be handled or touched after it is received. All the operations are conducted in pans thoroughly scoured with sand and hot water, and afterwards submitted to the action of high-pressure steam. There is no addition of any preservative except an extremely small proportion of borax, amounting to perhaps 0.2 grain per gallon of original milk, the keeping properties of the condensed milk being mainly dependent upon three things:

1. The extreme cleanliness observed in its manufacture.
2. The heating of the milk to a very considerable temperature *after* condensation.
3. The careful packing and soldering in air-tight tin cans.

The inorganic constituents were found by Professor Fresenius to be the following:

	In 2.36 parts.	In 100 parts.
Borax	0.630	26.69
Soda	0.256	10.85
Lime	0.543	23.01
Magnesia	0.057	2.41
Oxide of iron	traces.	traces.
Phosphoric acid	0.669	28.35
Sulphuric acid	0.049	2.08
Chlorine	0.202	8.56
	2.406	101.95
Less oxygen	0.046	1.95
	2.36	100.

—*The Analyst*, 1883, 171.

Dundaké and Dundakine.

Dundaké (doundaké) is the name of a tree found at the west coast of Africa. Its bark, which is employed by the natives of the Rio Nunez as a febrifuge, has an orange-red color, a strongly bitter taste, and is formed of a series of layers which are easily separated from each other. Venturini has obtained from it a substance supposed by him to be identical with salicin, and Engel has suspected that it contains an alkaloid.

Rochefontaine, Féris, and Marcus have lately studied the physiological effects of the bark.

They have extracted from it a yellowish substance, crystallizing in rhomboeders, of a bitter taste, soluble in water and in alcohol, and of an alkaline reaction. They consider it an alkaloid, and have named it dundakine (doundakine).

The physiological effects show that the bark contains a toxic substance producing a condition resembling catalepsy. The most prominent feature of the intoxication is the retardation and arrest of respiration, even while the heart-beats continue to be regular; finally the heart becomes gradually arrested, and death supervenes.

The arrow-poison of the natives of the Rio Nunez appears to contain the active principle of dundake bark.—*Répert. de Pharm.*, January, 1884.

Cresotic or Homosalicylic Acid.

This substance, which is obtained from kresol-sodium in the same manner as salicylic acid is obtained from phenol-sodium (by heating in a current of carbonic acid gas), has been found to be as powerful an antiseptic as salicylic acid, and even to exceed both the latter and also quinine in its power of lowering, and keeping low, febrile temperature. This effect is said to be obtainable by doses of 5 to 8 grammes (75 to 120 grains) of the sodium salt of the acid (natrium cresotinicum, cresotate of sodium, homosalicylate of sodium). The experiments so far conducted with this substance, however, are not sufficient in number, nor has the salt been always available of sufficient purity to form a conclusive judgment.—*Pharm. Zeit.*

Phenolboric Acid.

This is an antiseptic recently brought into use. It appears in form of crystalline needle-groups of a feebly acid character, which are but little soluble in cold, but easily so in hot water, alcohol, and ether. It is said to possess even stronger antiseptic properties than phenol itself. [According to our experience, this claim is usually made for each new antiseptic introduced.—Ed. A. D.] It has a mildly-aromatic taste, an agreeable, marjoram-like odor, and, even when taken undiluted in form of powder, causes neither burning, nor caustic or irritating effects on the mucous membrane. At the same time, doses of 1 gramme cause ringing in the ears, vertigo, slight headache, and inclination to sleep. It also lowers the temperature of the body in febrile affections.—*Pharm. Zeit.*

Morgan's Reduced Iron.

This kind of reduced iron is prepared in the following manner: 259 gm. of ferrocyanide of potassium are dried until all water of crystallization is expelled, then finely powdered and gradually mixed with 125 gm. of washed and powdered ferric oxide and 90 gm. of pure, dried carbonate of sodium. The mixture is thrown, in small quantities at a time, into a crucible heated above a dull-red heat, and the heat finally continued until no more effervescence is observed. The mass is allowed to cool in the crucible, then taken out, powdered, and put into a large vessel, where it is washed with distilled water until the washings are no longer rendered cloudy by nitrate of silver, that is, until no more cyanide is present. The powder is collected upon a filter and dried as rapidly as possible in order to prevent a protracted contact with the air. This form of reduced iron, if kept in well-closed vessels, keeps for a long time unaltered.

It is a fine, dark-gray powder, completely soluble in hydrochloric acid with strong effervescence.—*Farm. Ital.* and *Pharm. Post.*

Mouth-Washes.

The *British Journal of Dental Science* recommends the following mouth-washes for the use of sick persons whose teeth and gums often become unhealthy through insufficient nourishment, medicines, or want of cleansing:—One part permanganate of potash to 100 to 150 parts of water, to which can can be added some camphor, as the metallic taste is disagreeable; or, a solution of boracic acid one in 20 or 30; or the following: tinct. of benzoin, 10 parts; tannic acid, 20 parts; alcohol, 30 parts; oil of peppermint, a sufficiency. Put 10 to 20 drops in a glass of water.

Adulterated Oil of Cassia.—William Saunders, of London, Canada, has lately found in market samples containing thirty to fifty per cent of a mixture consisting of about four parts of castor oil to one of alcohol.—*Pharm. Record.*

The Young Leaves of the Lime.

ACCORDING to a correspondent of the *Tropical Agriculturalist* of Ceylon, these leaves have a pleasant, sweet, mucilaginous taste, if eaten raw or boiled as a vegetable, or used as a salad, and he adds that he and his family have so used them for years.—*Pharm. Jour.*

Dry Sulphuric Acid.

VORSTER GRUENBERG, a German chemist, has suggested that, to facilitate transportation, the infusorial earth called *kieselguhr* used for the absorption of nitroglycerin may be similarly used with sulphuric acid, of which it will take up three times its own weight. In this condition, it may safely be transported in containers of wood or iron lined with lead. For many purposes it can be used in this form, and, after the removal of the acid, the *kieselguhr* may be washed, dried, and used again. It imparts no impurity to the acid.—*Pharm. Jour. and Trans.*

A Root- and Herb-Chopping Apparatus.

IN a recent number of the *Pharmaceutische Handelsblatt* (No. 3) an apparatus for chopping roots and herbs is described, which may be of interest to some of our readers, although we suspect that most of them would prefer to use a mechanical chopper rather than to expend a considerable amount of elbow-grease.

The chopping machine consists of a iron box into which a chopping board is laid, and upon this the articles to be comminuted. The chopping knives are fastened into the face of a holder with a long, hollow handle, which may be made more or less heavy by filling with sand or lead, according to the strength of the user. The knives can be easily detached, for grinding. The apparatus is made and sold by A. Zemsch, of Wiesbaden.

A New Reagent for Nitric Acid.

IF a liquid holding in solution nitrates is mixed with a few drops of paratoluidine sulphate, and superstratified with sulphuric acid, there appears at the boundary of the two liquids an intense red coloration, which passes into a dark yellow only after a considerable time. Crude aniline may be used instead of pure paratoluidine. The red coloration can be recognized in fluids containing $\frac{1}{100}$ nitric acid. The reaction is less sensitive than that obtained with brucine and diphenylamine, but it has the advantage of producing a different color (blue) with chloric, bromic, iodic, chromic, and permanganic acids. It can also be used for distinguishing nitric from nitrous acid, since it produces with the latter a yellow coloration which gradually passes into red.—A. LONGI, in *Gaz. Chim.*

Removal of Silver Stains from Marble.

IT will be remembered that the magnificent marble statue of Liebig, erected in Munich, was wantonly bespattered during one night of last fall with a liquid which left innumerable brown and black spots and streaks upon it. All efforts to find out the perpetrator of the outrage remained in vain. At first it was supposed that the statue was permanently ruined, but a commission was subsequently appointed, consisting of Professors M. von Pettenkofer, Ad. Baeyer, and Clem. Zimmermann, for the purpose of examining the stains and report on some method for their removal. These gentlemen succeeded in ascertaining the nature of the stains, which turned out to be due to nitrate of silver and permanganate of potassium. And it was not long before they discovered a method by means of which the stains could be completely removed. This consisted in converting the metal in the stains into a sulphide and removing this afterwards by cyanide of potassium. Both recently prepared as well as dried sulphide of silver is easily dissolved by the cyanide; sulphide of manganese, however, requires a considerable time, but is also completely dissolved.

The stains were first coated with a magma made from ground porcelain-clay and sulphide of ammonium, which was renewed once after twenty-four hours. After forty-eight hours this was removed, the spots washed with water, and then a magma applied which was composed of the same clay mixed with concentrated solution of cyanide of potassium. This was several times removed, and finally the whole stain disappeared. In some cases the applications had to be several times repeated. But finally, on December 13th (about twenty-three days after beginning the work), the statue appeared again in its original spotless beauty.

WEIS' SAFETY ATTACHMENT FOR THERMOMETERS.

THE frequency with which clinical thermometers are accidentally broken is a subject for constant complaint on the part of physicians. Not long since a series of letters relating to it was published in the *Medical Record*, and many plans were suggested for avoiding such losses. One of the simplest and at the same time most attractive appliances to accomplish this end is the safety-case made by Albert A. Weis, of 80 Nassau Street, consisting of a gilt case and chain with a safety-pin for attachment to the vest. The thermometer is cemented to a screw-cap which secures it in the case when it is not in use. The whole thing is attractive in appearance and should find a ready sale among practising physicians.

Antibacterid.

THIS is an antiseptic patented in Germany by Aschmann. It is prepared by dissolving 338 gms. of borax and 198 gms. of grape sugar in a little water as possible, adding 124 gm. of boric acid, and evaporating until the mass congeals on cooling.

A similar preparation, introduced some time ago, is glacialin (see NEW REM., 1883, 25).

Gum Kauri.—Intelligence has been received from New Caledonia that the French Government recently granted to Mr. Adolphus Oppenheimer, of Alkland, the right and monopoly for ten years to dig for and export kauri gum from New Caledonia, where he had discovered two extensive gum fields, yielding excellent hard kauri; also several rich chrome and cobalt mines, and obtained concessions for working the same.

Labelling Stock Bottles.—A correspondent recommends the following plan of marking stock bottles, as for instance, in the case of tincture of capsicum:

U. S. P. 1880.
TINCT. CAPSICI
W. B. 20 oz. av.
W. P. 25 " "
W. T. 45 " "

W. B. signifies weight of bottle; W. P., weight of percolate, and W. T., total weight. Once done, it never requires repetition, so long as the bottle lasts.

Green Ink.—Two ounces copper acetate may be boiled with 1 ounce of potassium bitartrate in 8 ounces of water, until the solution is reduced to one-half of its original bulk. To be filtered through cloth.

Treatment of Warts.—Two French doctors have stated that they have cured warts by the internal administration of twelve-grain doses of calcined magnesia. They cannot explain the action of the medicine.

Incense.—The *Chemist and Druggist* states that the following was the formula known to be used in a large Roman Catholic church: Benzoin and storax, of each, 4 oz.; labdanum and myrrh, of each, 6 oz.; cascarilla, 3 oz.; oil of cinnamon, 8 minims; oils of lavender and bergamot, of each, 20 minims; oil of cloves, 10 minims; mix, and pass through a coarse sieve.

Oxyline is the name adopted by the holder of patent 289,100, for a "substitute" for cacao butter. It consists, according to the season of the year, of varying proportions of oleomargarine stock, oleomargarine stearine, and stearine derived from vegetable fats or oils. The inventor says that he has been manufacturing this compound for the use of confectioners for nearly ten years, and that it is used extensively in place of butter of cacao derived from chocolate.

Solubility of Benzoate of Ammonium.

Neutral benzoate of ammonium is said to be soluble in 5 times its weight of water, and 28 times its weight of alcohol, at 15° C. (59° F.). Boiling water dissolves almost 80%, and boiling alcohol 13% of its weight of the *neutral* salt. The *acid* salt is reported to be much less soluble. When by keeping its ammonia has escaped and the salt has become acid, carefully saturate with ammonia.

To Render Dress Materials Uninflammable.

TUNGSTATE of soda has been the material most frequently employed to render light fabrics uninflammable; it fulfils the purpose admirably, but its high cost has been an objection to its use. Patera's formulæ have stood successfully frequent trials of their efficacy. One of these preparations is made by dissolving 3 parts by weight of biborate of soda, and 2½ parts of sulphate of magnesia, in 20 parts of water. Fabrics soaked in this solution become coated with a borate of magnesia, which is insoluble in hot or cold water, and is a good resistant of fire. The other preparation is a mixture of sulphate of ammonia with sulphate of lime, or gypsum, in proportions of 1 part of sulphate of ammonia with 2 parts of gypsum. The gypsum is said to form with the ammonium a double sulphate which has not the disagreeable properties of the ammonia-salt. The action of this preparation seems to be twofold—first, in coating the fibres of the material to be protected, and also in the production, when the material is brought to a red heat, of volatile ammonia, which tends to smother flame.—*Br. Med. Jour.*

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,258.—**Aconite Species** (Mat. Med.).

Whether the aconite leaves and root of commerce are all collected from *Aconitum Napellus*, or whether other species are occasionally made to contribute toward the stock, is a question which has occupied the attention of several investigators. It is probable that at least most of the aconite root at present used is really obtained from *Napellus;* as regards the herb, there is much more chance for admixture.

The first one who used aconite as a remedy and carefully observed its therapeutic effects was Dr. Stoerk, of Vienna (about 1762); it is, however, pretty certain that the species he experimented with was *Aconitum neomontanum*. In the *Berlinisches Jahrbuch für die Pharmacie*, f. 1796 (16mo, Berlin, 1796), p. 129, Prof. Willdenow makes the following remarks on this subject, which will even now be of interest, and which we translate here, as the original is not easily accessible:

"Various botanists have disputed over the question whether the aconite used by Stoerk was *A. Napellus* or *A. Cammarum*. I myself believe that there is but little therapeutic difference between all the species of A. which have blue flowers. This much I know for certain, that neither about Berlin nor in many other localities in Germany is there any *A. Napellus* to be found growing, nor any *A. Cammarum* even in gardens. In the latter *A. neomontanum* is held for *A. Napellus*, and *A. tauricum* for *A. Cammarum*. Both of these species have been used with good effect in lieu of *A. Napellus*. The latter is but seldom met with in Germany [It is much more common at present.—Ed. A. D.], being confined to the high mountains of Switzerland and Southern Europe, and also growing in Sweden. Since the other species of A. may replace the *Napellus* without detriment, and apothecaries are everywhere required to keep the herb in stock, it would be unjust to insist on the employment of the *Napellus* exclusively, since the difference can scarcely be detected by any one not a good botanist. Besides, it should be stated that Stoerck's aconite, as well as that which Jacquin considered to be the *Napellus*, are in reality *A. neomontanum*."

No. 1,259.—**Ethereal Tincture of Iodine, Magendie's** (Dr. & Ph.).

This is a solution of 4 grains of iodine in 1 fluidrachm of ether, which was recommended by Magendie as a remedy in scrofulous and neuralgic affections, in doses of 4 to 10 drops several times daily.

No. 1,260.—**Dyeing of Billiard-Balls** (P.).

A recently-published (*Pharm. Zeit.*) formula is as follows:

Place the ball for one minute in water, so that it is covered by the latter. The water should have first been mixed with 10 drops of nitric acid. It is then taken out, washed, dipped for one minute into a hot decoction of cochineal, then washed with water and dried. The decoction of cochineal is prepared by boiling 5 gm. (75 grains) of ground cochineal in 500 *cc.* (17 fl. ozs.) of water, with addition of 0.5 gm. (7½ grains) of stannous chloride (protochloride of tin), in a copper vessel. If the color is too light, use 10 gm. of cochineal and 1 gm. of the tin-salt, make a decoction, and dye the ball as before.

According to another statement, the ball should be placed for 10 to 20 minutes into diluted nitric acid (1 in 32), then well washed, and treated for 10 to 20 minutes with a solution of stannous chloride (1 in 200). Next it is placed for 10 minutes into a boiling solution of carmine (1 in 200), to which a little ammonia has been added. The addition of tartaric acid toward the end of the boiling, produces a scarlet tint.

When cold, the ball should be rubbed with a little linseed oil.

No. 1,261.—**Camphor-Ice** (Y.)

Try the following:

Almond Oil, exp.	16 ozs.
Rose-Water	16 "
White Wax	1 oz.
Spermaceti	1 "
Camphor	2 ozs.
Oil of Rosemary	½ oz.

Melt together at a moderate heat the oil, wax, and spermaceti, and dissolve the camphor in the mixture. Then gradually add the rose-water, stirring briskly and constantly until the mixture is cool, and then continue the stirring until it has become uniformly soft and creamy.

No. 1,262.—**Cod-Liver Oil Mixtures** (V. E. S.).

The cod-liver oil mixtures of the London hospitals, which are those we presume you refer to in your communication, are thus given by Squire:

Mistura Olei Morrhuæ.

Cod-liver oil 1 ℥, lime-water 1 ℥; one dose (St. Mary's).

Cod-liver oil ½ ℥, comp. tinct. of gentian 5 ♏, lime-water to 1 ℥ (University).

Mistura Olei Morrhuæ Amara.

Cod-liver oil 1 ℥, Tr. of Calumba 15 ♏, lime-water 1 ℥ (St. Mary's).

Mistura Olei Morrhuæ cum Ferro.

Cod-liver oil 1 ℥, carbonate potass. ¼ gr., wine of iron 1 ℥; dose 2 ℥ (St. Mary's).

Mistura Olei Morrhuæ cum Potassa.

Cod-liver oil 6 ℥, solution of potassa 40 ♏, stronger water of ammonia 2 ♏, oil of cassia 1 ♏, syrup 2 ℥ (consumption).

Mistura Olei Morrhuæ Præparata.

Cod-liver oil 6 ℥, stronger water of ammonia 2 ♏, oil of cassia 1 ♏, syrup 2 ℥ (consumption).

No. 1,263.—**Patent Preserving Salt** (Altoona).

We have made inquiries in reference to the article you mention, and have come to the conclusion that it is likely to be a substance patented, some years ago, in Germany by the chemical factory "Eisenbuettel" in Brunswick (Germ. Pat. No. 13,545), under the name of "Eisenbuetteler Conserve-Salz" (Eisenbuetteler Preserving Salt). Dr. Hager, in his *Praxis*, speeks very favorably of this, and even recommends pharmacists to keep it in stock and to sell it. He says:

"The chemical factory Eisenbuettel in Brunswick furnishes this salt in elegant tin-boxes, with double cover. The lower or inner cover is perforated like a sieve, so that the meat or other substance to be preserved may be uniformly sprinkled by the salt, which is in form of a powder. Its constituents are phosphate and chloride of sodium, nitrate and sulphate of potassium, boric acid, etc. It is used by uniformly sprinkling with it all of the surface, as well as any interior cavities of the meat. For two pounds of the latter, about four to twelve gm. (one-eighth to three-eighths oz.), or one to three teaspoonfuls are sufficient. Before use, the meat is to be washed, which is easily done, as the powder is quite soluble. Milk may be preserved unchanged by adding one gm. (fifteen grs.) to one litre (one quart). Further information may be obtained from the firm direct.

No. 1,264.—**Preparation of Butyric Ether** (F. E.).

Butyric ether, which is used in the preparation of several artificial flavoring extracts, can probably be purchased at a lower figure than it would cost to make it, per pound, on the small scale. Still, if you wish to make it yourself, we will give you a few formulæ from our files. By the way, the commercial butyric ether, sold for flavoring, is usually a mixture of various ethers, chiefly butyric. It depends greatly upon the process by which it is made, and also on the use to which it is to be put.

1. *From Butyric Acid.*—Mix slowly 4 parts of butyric acid, 4 parts of alcohol, and 2 parts of concentrated sulphuric acid. The butyric ether separates as an oily layer, which is removed by a pipette, washed with water, and mixed with a little chalk to neutralize free acid. It is then digested with chloride of calcium and distilled. If wanted quite pure, this must be repeated. When diluted, the product has a pleasant, pine-apple like odor.

2. *From Butter-Soap.*—This is prepared by mixing in a retort 10 parts of finely cut butter-soap, 5 parts of 90% alcohol, heating until solution is effected, then adding a mixture of 4 parts of alcohol, and 10 of sulphuric acid, and distilling, first with a very gentle heat. The product is purified as in No. 1. It is very aromatic, different from No. 1, and contains other ethers besides butyric.

3. *From St. John's Bread.*—St. John's bread (Ceratonia Siliqua) contains butyric acid ready formed, and butyric ether is sometimes prepared from it by subjecting it to fermentation and afterwards distilling the mass. Yet the method is circumstantial, and only available where the crude material can be had at a very low price.

No. 1,265.—**Non-Gumming Oil** (Ultra).

One of the best non-gumming oils, suitable for watches, rifles, and fine machinery in general, is that obtained from the jaw of the porpoise (Porpoise Jaw Oil), which may be occasionally had in moderate quantites, in some of the New England fishing towns. Other oils, such as that extracted from the wings of sea-gulls, etc., etc., have also been highly extolled, but the supply could never become equal to the demand.

A very good machine oil is said to be prepared in the following manner:

Caballine Oil	6 parts.
Pure Olive Oil	6 "
White Rosin Oil	10 "
Purified Petroleum	4 "

Caballine oil is obtained from the neck of the horse. The olive oil must be winter strained. The White Rosin Oil (called in Germany Cod-öl) is prepared from crude, heavy rosin oil, by saponification and distillation. It must be as clear and colorless as water. The above mixture of oils is much used for fine machines, clocks, telegraph-instruments, etc., etc.

In general, all oils which are extracted from bones possess the property of retaining their fluidity even when exposed to cold. There seems to be, however, some difference in this respect, between animals living in cold climates and those accustomed to heat inasmuch as the oil extracted from the bones of the former appears to bear a much greater degree of cold than the latter. We should, therefore, suppose that the oil extracted from the bones

of the seal, sea-lion, etc., which could be obtained in considerable quantity, would form an excellent article.

No. 1,266.—**Eosin** (Shoshone).

This important and handsome red coloring matter was discovered by Caro in 1873, and marks the beginning of a new era in the aniline color industry. At the time when it was first put on the market, its manufacture was kept secret, because the patent-laws then in force were defective. The ingenuity of experts on this field of organic chemistry (Gnehm, and A. W. Hofmann) soon found out the mystery.

In a former volume of this journal (NEW REM., 1880, 269) we explained the chemical constitution of resorcin. By referring to this article, it will be seen that resorcin is a derivative of benzol (C_6H_6), in which the two hydrogens in the meta-position (Nos. 1 and 3) are replaced by hydroxyl.[1] Next it may be stated that another derivative of benzol, discovered in 1836 by Laurent, but not fully understood until long afterwards, is phtalic acid. This is, however, not manufactured by starting from benzol, but from naphthaline. It may be regarded as benzol in which the two hydrogens in the ortho-position (Nos. 1 and 2) are replaced by carboxyl (COOH or CO_2H).[2] Phtalic acid may be converted by heating into phtalic anhydride, water being eliminated; see Note 3, where it will be seen that the two hydrogens and one oxygen of the 2 carboxyls have dropped out.

By heating resorcin and phtalic anhydride together at a temperature of 200° C., a new substance, *fluorescein*, is produced, and 2 molecules of water are eliminated.

$$\underset{\text{resorcin}}{2(C_6H_4H_2O)} + \underset{\text{phtalic anhydride}}{C_8H_4CO_3} = \underset{\text{fluorescein}}{C_{20}H_{12}O_5} + \underset{\text{water}}{2H_2O}$$

To explain the constitution assigned to fluorescein would lead here too far. We will only add that this body has the property of imparting a magnificent greenish-yellow fluorescence to water containing an alkali.

Finally, by treating fluorescein with bromine, 4 atoms of hydrogen are replaced by bromine, and eosin ($C_{20}H_8Br_4O_5$) is produced.

One part of fluorescein is stirred in about 8 parts of alcohol and gradually mixed with 1.1 part of bromine. To the mixture another 1.1 part of bromine is gradually added, whereby the new substance, *tetra-bromfluorescein*, or commercially called *eosine*, is separated as a crystalline precipitate which is washed first with alcohol and then with water, until the washings cease to be acid.

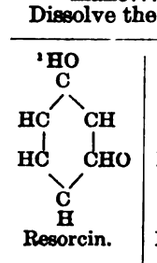
Eosin is a bibasic acid, the alkali salts of which are soluble in water. The water-soluble eosin of the market is usually the potassium, sometimes the sodium salt, and appears as a reddish-brown powder of slight metallic luster.

No. 1,267.—**Eosin Ink** (Shoshone).

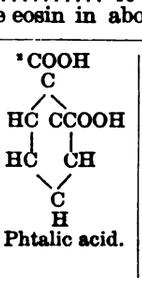
To make a good, quick-drying red ink from eosin, take—

Eosin (best, water-soluble)	120 grains.
Alcohol	2 fl. oz.
Mucilage	1 fl. oz.
Water, enough to make	16 fl. oz.

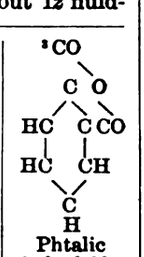
Dissolve the eosin in about 12 fluid-ounces of water, a small portion of this being poured, hot, upon upon the eosine contained in a bottle. Next add the alcohol, and shake; finally, add the mucilage and enough water to make 1 pint.



Resorcin.



Phtalic acid.



Phtalic Anhydride.

No. 1,268.—**Hyosyomine and Hyoscine** (X.).

We have have recently had occasion to read a letter from a physician in which he complains of having failed to obtain results with doses of hyoscyamine as large as one-fourth grain. Since this matter is of some importance, and quite a number of our readers are interested in it, we will briefly state here our experience.

Up to about three or four years ago, the hyoscyamine (or sulphate of hyoscyamine) of the market, which was made by Merck, Schuchardt, Trommsdorff, and a few other German houses, was in form of a brown, extract-like mass. It was of very variable and uncertain composition, and, although the dose was occasionally stated to be not over about one-twenty-fourth of a grain, yet it could generally be given in doses of one-eighth to one-half grain without producing dangerous symptoms. After Prof. Ladenburg, of Kiel, had undertaken the chemical study of the solanaceous alkaloids, he found, in the course of time, that hyoscyamus contained at least two alkaloids, one of which is hyoscyamine and is crystallizable, while the other remained in the mother-water left after the crystallization of the former, and was, at least by itself and as then known, uncrystallizable. This latter alkaloid he named *hyoscine*. It has the same ultimate constitution as hyoscyamine, but is not identical (at least chemically) with the latter.

When he had succeeded in isolating the pure crystallized hyoscyamine, which succeeded only by converting it first into the gold salt and then again separating it from the latter, the pure alkaloid came in use in medicine. In the experience of physicians in the public hospitals of New York, its use was, however, found to be accompanied by varying results, which could finally be ascribed partly to its rather difficult solubility, and the ease with which undissolved portions of the minute quantity employed each time could be lost or overlooked when making a hypodermic solution. The sulphate of the pure alkaloid was next tried, but here another difficulty presented itself. Namely, quite a quantity of the white *alkaloid* hyoscyamine happened to be put on the market labelled "Sulphate of Hyoscyamine" which, on examination, turned out not to contain any sulphuric acid at all, but to be merely the alkaloid itself. How this blunder could have arisen we fail to understand; but it was made in the factory in Europe, and we still preserve a specimen of the substance. Naturally, this spurious sulphate was not any more soluble than the alkaloid itself. Next, the pure crystallized sulphate of hyoscyamine actually made its appearance on the market in form of minute golden-glistening crystals, but the price of this was double that of the "white," semi-crystalline (?) sulphate. This yellowish, shining sulphate acted very promptly in doses of one-sixtieth to one-twentieth grain, the larger quantity being, of course, only given in special cases. Its excessive price, however, prevented its extensive use. About the same time, an "amorphous sulphate of hyoscyamine," in form of a yellowish, or buff-colored, dry, but hygroscopic powder, was put on the market. On trial, this was found almost, if not quite, as active and uniformly reliable as the pure crystals, and, from that time on, this amorphous sulphate has been in constant and increased demand in the hospitals, particularly in the lunatic asylums, where it is much relied on as a nervine sedative. This amorphous sulphate of hyoscyamine, however, is made by merely evaporating the mother-water from which the hyoscyamine has been separated to dryness (after addition of sulphuric acid to convert the alkaloid into sulphate). It therefore contains: 1st, the new alkaloid hyoscine discovered by Ladenburg; 2d, the remaining traces of hyoscyamine; 3d, possibly some other alkaloidal body not yet studied. At all events, hyoscine constitutes its main portion. The sulphate of hyoscine, even when pure, does not crystallize. There are, however, several well-crystallizable salts, *f. i.*, the hydriodate and hydrobromate.

It has been found that, of all solanaceous alkaloids, hyoscine is closest allied, therapeutically, to atropine, and even surpassed the latter in its power of producing mydriasis, according to the observations of Hirschberg (see *Centralbl. f. prakt. Augenheilk.*, 1881, June).

Ever since the "amorphous sulphate of hyoscyamine—which is the trade-name for the sulphate of hyoscine above-described—has been used in the public hospitals of New York, it has given complete satisfaction, and is altogether preferred to the pure hyoscyamine.

No. 1,269.—**Liquid for Etching Glass.**

As a further answer to Query 1,168 in our last October number (compare also last January number, p. 16), we quote the following process communicated by Dr. M. Müller in the *Neueste Erfindungen und Erfahrungen:*

Rub together in a porcelain mortar equal parts of (non-fuming) hydrofluoric acid, fluoride of ammonium, and dry sulphate of barium. The latter should have been precipitated from a solution of chloride of barium by an excess of sulphuric acid, washed well by decantation, filtered, and dried at 120° C. The mixture is then poured into a platinum, lead, or rubber vessel, and gradually mixed with fuming hydrofluoric acid, while being thoroughly stirred with a rod made of one of the just-mentioned substances until the magma is rather soft. This thickish liquid may be used for writing on glass with a steel pen. The etching takes place at once, and leaves very handsome opaque marks. It is advisable not to allow the action to continue over twenty seconds, as the edges of the marks may lose their sharpness. If a less strong acid is used, the edges are less liable to be jagged, but the marks are generally less plain.

The thick liquid must be kept in rubber bottles, or may be kept in glass vessels if the latter are coated inside with wax or paraffin. The barium salt is added to prevent the mass from running. It is apt to settle to the bottom in a dense mass, and must be incorporated by shaking before use. Should this be found difficult, some lead-shot may be dropped into the mixture, and shaken up with it.

It should always be remembered that strong hydrofluoric acid is apt to produce very painful and even dangerous sores upon the skin. Caution should, therefore, be observed in using the mixture. [When shaking the bottle, the hands should be wrapped in a towel, and the shaking should be done in such a direction that none of the liquid can be thrown into the face.]

Dr. Ehrlich, of Görlitz, reports that he has had much experience in etching glass and that on one occasion the etching liquid, instead of producing the usual dull or opaque marks caused the etched places to be perfectly transparent. It was found that opaque etching is effected only by *neutral* fluoride of ammonium.

If hydrofluoric acid is evaporated (in a lead or platinum capsule, or in

an ordinary porcelain capsule lined with sheet-rubber) after having been neutralized with ammonia, the *acid* salt —$NH_4Fl.HFl$, is always obtained, since a portion of the ammonia is lost by evaporation. The neutral salt is only obtained if the contents of the capsule are repeatedly neutralized with ammonia during the evaporation. — *Pharm. Zeit.*, No. 5.

No. 1,270.—**Absorbent Cotton**

F. L. Slocum's method is to boil the best quality of carded cotton batting with a five-per-cent solution of caustic soda or potassa for a half-hour, or until the cotton is entirely saturated and the alkali has saponified all the oily matter naturally present in the interior of the fibre. Wash thoroughly, pressing out the water, and immerse for 15 to 20 minutes in a five-per-cent solution of chlorinated lime. Wash again, first with a little water, and then with very dilute muriatic acid, and lastly with an abundance of pure water. Boil again for 15 or 20 minutes in a five-per-cent solution of caustic soda or potassa, and wash well, first in water, and then in acidulated water, and finally in pure water. Dry rapidly.

No. 1,271.—**Nitrite of Sodium** (W. D.).

This correspondent says that he has tried to prepare this salt by a process mentioned in Dunglison's Medical Dictionary, namely, to heat nitrate of sodium and charcoal to a red heat, until the salt becomes white, and then to raise the heat so as to melt the salt. He could not, however, obtain the salt white, not even with the blow-pipe, and as to melting it, this was out of the question altogether. He can only get it to a light gray color. He wants to know what is at fault, and how to test the product.

Theoretically, the amount of charcoal needed for reducing 100 parts of nitrate of sodium to nitrite, is almost exactly 7 parts: $2NaNO_3 + C = 2NaNO_2 + CO_2$. But the reaction is seldom as perfect as the theory would show; and it is always best to use a considerable excess of charcoal. Moreover, the charcoal should be free from mineral constituents. Instead of taking charcoal, metallic lead or copper, in small fragments (fine copper wire) may be taken, with better chance of a good result. The fused mass finally obtained, particularly in the case when charcoal was used, must be dissolved in water, filtered, and evaporated. As a rule, there is always some nitrate left undecomposed, some caustic or carbonated soda is also sometimes produced. The nitrite may be freed from nearly all of these by dissolving it out with 80% alcohol. If it is wanted absolutely pure, the best plan is to *digest*, in a flask, any desired quantity of nitrite of amyl with enough of an alcoholic solution of pure caustic soda, so as not to decompose the whole of the nitrite of amyl. There will finally be present: nitrite of sodium, amylic alcohol, undecomposed nitrite of amyl, and the alcohol. Water is now added, and the mixture heated on the water-bath until all the volatile products are dissipated, when the aqueous solution may be evaporated to dryness. An additional means of purifying would be to precipitate the aqueous solution of nitrite of sodium with nitrate of silver, which yields nitrite of silver; this may be washed, and thereby obtained perfectly pure. The purity of any given sample of nitrite of sodium may be estimated volumetically by titrating with a solution of permanganate of potassium of known strength, acidulated with sulphuric acid (see, however, on this our last number, p. 53). It may also be done, in some cases, gravimetrically by precipitating the alkaline nitrate in hydro-alcoholic solution with nitrate of silver, and weighing the resulting nitrite of silver. For other methods see text-books.

No. 1,272.—**Phosphorus Paste for Rats** (F. F. K.).

Hager recommends the following, which yields a product that may be kept, without spoiling, for months, is easily prepared, very eagerly eaten by rats, and is not liable to produce fire.

The compound is prepared from a powdered sweetened bread, and a syrup of phosphorus.

a. The sweetened bread is baked like any other home-made bread, from 1,000 parts of rye flour and 200 parts of powdered sugar. It is then cut in slices, dried, and reduced to a coarse powder, which is kept in tin boxes.

b. The syrup of phosphorus is prepared by putting into a flint-glass bottle of a capacity about one-third larger than the volume of the contents, 200 parts of simple syrup and 50 parts of phosphorus. (In place of the 200 parts of syrup, a mixture of 100 parts, each, of syrup and glycerin may be taken.) The bottle is placed in a water-bath, until the phosphorus is melted. It is then corked, wrapped in a cloth, and continuously shaken until the syrup is cold, when the phosphorus will be finely divided. It is kept in a safe place, alongside the phosphorus. Before use it must be well shaken.

The rat poison is made by mixing about 15 parts of the sweetened bread, 10 parts of the syrup of phosphorus, and 20 parts of water together, so as to form a thick paste.

This is spread in pieces of the size of a hazelnut upon fresh bread or pieces of bacon, and placed in the way of the rats.

No. 1,273.—**Cement for Tablets** (C. M., Whitestone, N. Y.).

The adhesive cement now commonly used to fasten the edges of the leaves forming tablets of writing paper, is composed of gum chicle or Balata gum, dissolved in bisulphide of carbon. We cannot give the exact proportions and we have an impression that the use of this compound for such specific purpose is patented.

No. 1,274.—**Purgative Principle of Croton Oil** (J. F. R.).

You will find an answer to your query elsewhere in this number, under the title: "The Purgative and the Vesicating Principle of Croton Oil."

No. 1,275.—**Pharmaceutical Registration in New York and Pennsylvania** (H. C. N., Canada).

Excepting New York City, and Brooklyn, N. Y., no registration is at present required of those wishing to do business as pharmacists in either of the States mentioned.

Elder Berries.—If the gentleman asking for information as to the best region for collecting elder berries will address Mr. W. A. Hardy, of Lebanon, Ohio, he may find it to his advantage.

Liquor Carbonis Detergens.

(Supplement to Query 1,251.)

Our attention has been drawn to a formula published in the *Druggists Circular* for 1870, where it is stated that its composition is said to be as follows:

Quillaia bark, bruised . . 4 lbs.
Alcohol, 65%. . . . . 2 gals.

Heat to boiling and macerate for some days in a sand-bath. (The tincture is then used to saponify the coal tar.)

Coal tar . . . . . 32 oz.
Tincture of Quillaia. . . . . 76 oz.

Digest eight days in a water-bath or sand-bath, at a moderate temperature, occasionally stirring, and filter.

The above is identical with, or at least closely related to, Lebeuf's Coal-tar saponine, which is made thus:

Tincture of Quillaia . . 24 parts.
Coal tar . . . . . 10 "

The tincture is made by heating 100 parts of quillaia bark with 500 parts of 90% alcohol, and filtering.

Information Wanted.

a. How may "Indelible Impression Paper," for marking linen, etc., with nitrate of silver, be prepared?

b. What is the composition of

1. Tufft's Asthmaline?
2. Kennedy's Medical Discovery?
2. Swift's Syphilitic Specific?

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

292,565. *Apparatus for Bottling and Syruping Aerated Beverages.*—James McEwan and Simeon Spencer, Manchester, County of Lancaster, England.

292,629. *Combined Can-Holder and Funnel.*—W. Mark Doty, Bigg's Station, Cal.

292,699. *Process of Solidifying Liquid or Semi-Liquid Fatty Acids.*—William Fitz Charles McCarty, Aix la-Chapelle, Germany.

292,696. *Apparatus for the Manufacture of Carbon Black.*—George G. Shoemaker, Edenburg, Pa.

292,764. *Balanced Thermometer.*—Philip G. Russell, Washington, D. C.

292,821. *Egg-Beater.*—Willis Johnson, Cincinnati, Ohio, assignor of one-half to Jacob Shaw, same place.

293,014. *Siphon Bottle.*—Herman L. Hanson, Medford, and Frederick J. Johnston, Boston, Mass.

293,089. *Bottle Register.*—Ebenezer H. Rogers, Jr., New York, N. Y.

293,117. *Manufacture and Proportioning of Weights and Measures.*—Charles A. L. Totten, U. S. Army.

293,230. *Truss.*—Orlando G. Darling and Henry A. Schultz, Brooklyn, N. Y.

293,335. *Vacuum Press Percolator.*—Charles Richard Knapp, San Francisco, Cal.

293,344. *Process of Extracting Glycerin from Fatty Matters.*—Edmond François Michand and Ernest Nicolas Michand, Aubervilliers, France, assignors, by mesne assignments, to the Continental Glycerin Company, New York, N. Y.

293,460. *Bottle.*—Frederick E. Henig and Frederick Stitzel, Louisville, Ky., assignors to Thomas H. Sherley, same place.

294,047. *Inhaler for Anæsthetics.*—George H. Hurd, Cleveland, Ohio.

294,052. *Lactometer.* — Albert R. Leeds, Hoboken, N. J.

294,181. *Measuring Tank.*—Willard E. Barcus, Vineland, N. J.

294,298. *Medical Compound.*—George Taylor, Reading, Cal., consists of pulverized buckeye-nuts, cayenne pepper, and ground ginger.

294,321. *Truss.*—Elbridge How, Peterborough, N. H.

294,425. *Manufacture of Linseed Oil.*—Albert J. Adams, Cleveland, Ohio.

294,479. *Apparatus for Administering Anæsthetic Gases.*—Amos M. Long, Munroe, Mich.

294,585. *Inhaler for Anæsthetics.*—Henry Cook, Leadville, Colo.

294,592. *Manufacture of Cream of Tartar.*—Franz Dietrich, Munich, Germany.

294,687. *Medical Compound.*—George Siebert, Wheeling, W. Va. Consists of pulverized sulphur, pulverized charcoal, refined sugar, lemon-rind, and sulphate of quinine.

294,729. *Clinical Metallic Thermometer.*—Wm. B. Fowle, Newtown, assignor to Robert M. Morse, Jr., Boston, Mass.

ASSOCIATION AND COLLEGE NOTES.

College of Pharmacy of the City of New York.

THE fifty-fourth lecture course of the college has just come to a close. The examinations of the junior class were held on March 3d with the result that, of 154 who presented themselves, 75 passed the examination successfully. The remaining 79, who failed, will have another opportunity given them, in September, to pass an examination.

The senior class was examined on March 5th, 6th and 7th in Botany and Materia Medica, Chemistry and in Pharmacy; also in Analytical Chemistry by being required to determine specimens given to them in the Laboratory; besides, in the recognition of specimens, and in practical pharmacy (prescriptions). Of the total number who presented themselves—120 in all—71 passed the examination successfully, while 49 failed. In addition to the 71 who passed the full examination, 3 others passed in special departments.

On March 18th, the annual commencement was held at Chickering Hall before a large and select audience. Owing to the fact that we are compelled to go to press, we can only note here, for the present, the names of the successful candidates who received their diploma as graduates in pharmacy.

Graduates of the fifty-fourth session, March, 1884:

A. Bayer, Jr., G. W. Bechtold, C. F. Behrens, H. A. Benton, C. D. Bowman, H. Buggie, H. L. J. Burmeister, E. W. Clark, A. B. Colburn, C. L. Conwell, F. P. Dalzell, C. O. Douden, F. Essig, T. H. Francke, E. Fougera, Jr., C. L. Gesell, C. B. Grimshaw, J. J. J. Gress, E. F. Hahn, W. D. Halpine, E. Hammann, F. T. Hartmann, H. E. Heebner, T. L. Hepp, Bertha Higgins, W. J. N. Hilbert, E. Holt, C. F. Jappe, L. L. Kemlage, C. Kuehne, J. H. Laubenheimer, M. M. Loubriel, R. J. Lucke, E. H. Merritt, C. N. Meyer, J. F. Miles, E. F. Mitchell, J. J. Mooney, A. Musler, G. A. Mutimer, L. R. Nathan, F. W. Race, H. Rauch, A. Reich, E. A. Reuss, W. C. Rodemann, E. Rosenkranz, H. W. Rouillion, J. B. Russell, L. Ruzicka, J. C. Saile, A. E. Schaeffer, W. F. Seidler, Jr., J. Shears, W. B. Shuptrine, J. F. Sommerhoff, H. D. Spingarn, W. T. Stafford, Miss A. H. Steinwedel, J. H. Terrell, H. E. Thompson, W. Van Eerde, T. A. Walsh, H. Weber, W. F. Weck, O. K. Weinman, A. V. Widman, C. H. Willard, F. Wuersten, F. Yager, A. Zimmerman.

Successfully passed in *Materia Medica and Chemistry:* C. R. Lush, C. E. Penfield.

In Chemistry: J. H. Jones.

The three prizes offered by the Alumni Association were presented to the three students passing highest in their class. The recipients were:

1st prize, gold medal: Joseph L. Sommerhoff.

2d prize, silver medal: Albert Zimmermann.

3d prize, bronze medal: Frank P. Dalzell.

The summer course in practical Botany, under the direction of Prof. Jos. Schrenk, will commence on April 9th. Special attention is called to this, as it is the only public course on botany delivered in the city.

The laboratory courses in analytical chemistry and pharmaceutical practice will be open during the months of April, May, and June. Applications should be made as early as possible.

The annual meeting was held on March 20th, when the following officers were elected: *President*, E. McIntyre; *Vice Presidents*, H. J. Menninger, Gust. Ramsperger, Geo. C. Close; *Treasurer*, David Hays; *Secretary*, Charles Froebel; *Trustees* (to serve three years), Chas. Rice, T. J. MacMahan, D. Peraza, P. F. Lehlbach. *Delegates to the American Pharmaceutical Association*, meeting at Milwaukee), G. J. Seabury, Ch. Rice, T. J. MacMahan, H. W. Atwood, T. F. Main.

At the thirteenth annual meeting on March 13th, 1884, of the Alumni Association of the New York College of Pharmacy, the following officers were elected: *President*, L. M. Royce; *1st Vice-President*, Fred. Hohenthal; *2d Vice-President*, T. Starr; *3d Vice-President*, H. A. Benton; *Treasurer*, D. Peraza; *Secretary*, Chas. F. Heebner; *Registrar*, John Oehler; *Members of the Executive Board for three years*, P. W. Bedford, C. F. Booth; *Delegates to the Milwaukee Meeting of the A. P. A.*, P. W. Bedford, T. F. Main, H. C. Schranck, J. R. Bond, E. T. F. Hottlensen.

St. Louis College of Pharmacy.

THE eighteenth annual commencement exercises of the St. Louis College of Pharmacy were held at Memorial Hall, on Wednesday evening March 12th, 1884. The President of the College, H. E. Hoelke, delivered an appropriate address, and conferred the degree of Graduate of Pharmacy on the following candidates:

Henry H. Barth, James M. Borton, Oscar F. C. Bausch, Geo. G. Berg, Chas. H. Biermann, Chas. F. Blank, Wm. T. Carr, Fred. D'Amour, Adolph G. Enderlee, Peter T. Entrekin, Wm. H. Fogas, Emil W. Gordon, Louis C. Haagen, Henry J. Helwig, Adolph J. Hoenny, Wm. O. Kempinsky, Otto Kollme, Chas. C. May, Julius C. Meisenbach, Chas. E. Meyer, Chas. Mueller, Henry Muetze, Wm. E. O'Melveny, Geo. L. Phelps, Louis Francis Reber, Edgar N. Sanders, Ernest C. Scholer, Herman C. Schuh, Fred. Wm. Schumacher, Arnold Sellner, Robt. H. Smiley, Otis W. Smith, Wm. O. Steinmeyer, Chas. H. Stoll, Otto Sutter, Joseph A. Temm, Otto Ude, Fred. Volz, August Vogt, Geo. H. Wagner, Jno. W. Westman, Francis Zerr.

Honorary mention was made of Adolph G. Enderle, Chas. F. Blank, Henry Muetze, Francis Zerr, Wm. O. Kempinsky, Henry H. Barth, Adolph J. Hoenny, Robt. H. Smiley.

The Alumni Prize, a gold medal, was awarded by Francis Hemm on F. W. Schumacher, of Waco, Texas, for obtaining the highest proficiency in all branches.

The valedictory address on behalf of the class was delivered by James M. Borton, of Marion, Illinois. A very interesting and instructive address on the part of the College was delivered by Rev. S. H. Sonneschein.

With the distribution of many beautiful floral offerings and with enlivening music the exercises closed.

The College had an enrolment of 120 students during the past season.

Alumni Association Louisville College of Pharmacy.

THE tenth regular annual meeting took place at College Hall, March 11th, at 8 P.M.

The meeting was a well-attended one, and proved highly entertaining to all the members present. The following officers were elected to serve for the ensuing year: William Tafel, *President;* B. Buckle, M.D., *first Vice-President;* O. A. Beckmann, *second Vice-President;* P. Schlosser, *Rec. Sec.;* Phil. Fischer, *Treas.;* E. Goebel, *Cor. Sec. Executive Board:* E. Scheffer, Jr., A. Schœttlin, A. J. Elwang, Simon Flexner, Otto E. Mueller.

Alumni Association of the St. Louis College of Pharmacy.

AT the ninth annual meeting of the Alumni Association, at the College rooms, February 19th, 1884, the following gentlemen were elected for the ensuing year:

Wm. C. Balm, *President;* Louis Schurk and Theo. Klipstine, *Vice-Presidents;* H. F. Hassebrock, *Rec. Sec.;* Wm. Schweickhardt, *Cor. Sec.;* Julius E. Koch, *Register;* J. W. Tomfohrde and Thos. A. Buckland, Jr., for three-year term of Executive Board.

Virginia State Pharmaceutical Association.

THE Committee on Exhibits for the meeting to be held at Lynchburg, on the 20th, 21st, and 22d of May, have addressed a circular to the drug-trade, soliciting exhibition of such articles as will be of interest to those in attendance. Preparations which are patented, or the formulas for which are withheld, are not eligible for admission. Application for space should be made previous to the first of May, to the Chairman, C.H. Lumsden, Lynchburg, Va.

The Newark Pharmaceutical Association has elected for *President*, J. A. Sayre; *Vice-President*, A. M. Linnett; *Secretary*, William Townly; *Treasurer*, W. F. Bell; and member of State Executive Committee, D. W. Brant.

Missouri.—The St. Louis Apothecaries' Association organized to promote trade interests has lately appointed a joint committee consisting of C. F. G. Meyer and J. C. Richardson, representing the wholesale trade, and M. W. Alexander, A. Mastbrook, and C. H. C. Klie, from the retailers.

The St. Louis College of Pharmacy Alumni Association's new officers are: *President*, W. C. Bohn; *Vice-Presidents*, L. Schurck, T. Klipstein; *Rec. Secretary*, H. F. Hassebrock; *Corr. Secretary*, W. Schweichardt; *Registrar*, J. E. Koch; *Executive Committee.* J. W. Tomfohrde, T. A. Buckland, Jr.

[See Adv. columns for additional Notes.]

ITEMS.

New Pharmacy Regulations in France.

The French Commission for regulating the practice of pharmacy have announced the following:

1. The second class of apothecaries is abolished.

2. No apothecary shall be the proprietor of more than one drug-store, except in the case of branch stores which shall each be in charge of an examined apothecary, whose name appears on the sign and labels.

3. Practising physicians may not dispense medicines except in emergency, and when there is no drug-store within 6 kilometres (more than 3 miles).

4. Unexamined persons cannot become proprietors of drug-stores, even when they employ a qualified manager. An exception, according to circumstances, occurs in the case of widows and of heirs.

5. Stock companies owning drug-stores may employ qualified managers, but each member of the firm must be either an approved pharmacist or a physician not engaged in practice.

6. The sale of secret medicines is prohibited.

7. All nostrums must be labelled with the composition and dose.

8. Nostrums containing poisonous ingredients must be registered the same as other poisons, and the register must be signed by the purchaser.

9. The next Codex will be revised by a commission composed of an equal proportion of medical professors, professors in pharmaceutical schools, and practical apothecaries, and of at least two veterinarians.

Bethulial Keith, M.D., well known as a manufacturing pharmacist, died on the 13th of March, at the age of seventy-three years. He was born in Randolph, Vt., and for some years practised medicine in Dover, N. H. In 1852 he removed to New York and entered the drug trade. Several years since he suffered an attack of cerebral hemorrhage, and relinquished his business to the care of his sons, and he has since passed the most of his time in Connecticut or in Florida. It was during a residence at Jacksonville, Fla., that his death occurred.

Edward H. Marsh, of the firm Lazell, Marsh & Gardiner, wholesale druggists, of No. 10 Gold st., died at his home, No. 319 Adelphi st., Brooklyn, on Sunday, March 23d. He was in his usual health on Saturday, attended to his business, and went to the Water Color Exhibition in the evening. About 7 A.M., he complained to his wife of a sharp pain in the region of his heart, and in twenty minutes he was dead. He was about fifty-four years of age, and for twenty-nine years he had been in the wholesale drug business in this city. He was well known in social and charitable circles in Brooklyn, and leaves a widow, three sons, and one daughter.

Henry A. Tilden, of New Lebanon, N. Y., died recently (in March), after a somewhat prolonged illness. He was well known as a manufacturer of pharmaceuticals, especially in the line of indigenous drugs, the excellence of his fluid extracts being widely known. He was a brother of ex-Governor Tilden, of New York City.

Dr. George Engelmann, the oldest practitioner in St. Louis, and the father of Dr. George J. Engelmann, died of pneumonia on February 4th, in the seventy-sixth year of his age. He was born in Frankfort-on-the-Maine in 1809, and came to the United States in 1832, after having received his education at the Berlin, Heidelberg, and Wurzburg Universities. He was one of the founders of the Western Academy of Science in 1836, and, later, one of the originators of the St. Louis Medical Society. In 1856 he was largely instrumental in founding the St. Louis Academy of Science, and was for many years president of that body. He had a high reputation as an authority in botany, and for forty-seven years he made it a part of his occupation to take meteorological observations several times a day, and only discontinued this practice two days before his death.

Dr. John Hutton Balfour, Emeritus Professor of Medicine and Botany in the University of Edinburgh, Regius Keeper of the Royal Botanic Garden, and Queen's Botanist for Scotland, is dead at the same age, seventy-six. He was a member of many learned societies, both at home and abroad, and was the author of a variety of books and articles on botany, including the Manual of Botany, and Botany and Religion.

Dr. Alfred L. Carroll, of West New Brighton, Staten Island, succeeds to the late Dr. Elisha Harris, deceased, as Secretary of the N. Y. State Board of Health.

Dr. Alexander Wood, of Edinburgh, who is known as the chief promotor, if not the inventor of hypodermic medication by means of the syringe, is dead.

Powers and Weightman suffered the destruction of a great part of their chemical laboratory by fire, on the 29th of February. The loss, without regard to insurance, was about a million and a half of dollars. The firm succeeded in saving a large supply of manufactured goods and are supplying orders as fast as possible. Meanwhile the erection of new laboratories has already commenced and the resumption of work will be as speedy as possible. Owing to the occurrence of the fire the price of quinine rose from $1.35 to $1.85 in one day.

The Quinologist is no longer to be counted among our journals; its editor, Dr. Mattison, finds his time too much occupied by other affairs. It has done good work in its special field and its demise is to be regretted.

Castor Oil and School Discipline.—According to the *British Medical Journal*, castor oil is employed as a means of punishment in the West Highland School, of Lochgoil Head, Scotland. Breaches of school discipline are treated by doses of castor oil, administered, not in the usually prescribed quantity, but by a draught from the bottle. Whatever laxity exists in that school is certainly not on the part of the teacher.—*N. Y. Med. Jour.*

Duty on Citrate of Magnesia.—The United States Customs Department has decided that effervescent citrate of magnesia shall pay 25 per cent ad valorem duty, regarding it as coming under the provision for "alkalies and all combinations of any of the foregoing, and all chemical compounds and salts." The department has also decided that enfleurage pomades, which have hitherto been assessed at 50 per cent ad valorem, should be charged at 20 per cent ad valorem, as "manufactured articles not enumerated."

Soda in Wyoming Territory.—Mr. F. H. Frankenberg, of Pueblo, Colorado, is about to utilize the raw soda found in the alkaline lakes of Wyoming Territory, by purifying it, and converting it, at Pueblo, into caustic soda, concentrated lye, baking soda, etc.

Tartaline is the name of a substitute for cream of tartar which, according to the *Pharm. Journ. and Transactions*, is being sold by English grocers. It is said to consist of the acid sulphate of potash.

Croton Blisters are recommended by Guérin as preferable to cantharides blisters, on account of the absence of liability to cause strangury. To make them, agitate equal parts of croton oil and 90% alcohol. After the undissolved portion has subsided, decant the alcoholic solution and evaporate it in a water-bath to the consistency of a thick oil. A piece of silk impregnated with this oil can be can be attached to the centre of a piece of adhesive plaster, and thus applied. [On the other hand the ulceration which sometimes follows the application of croton oil is far more serious than that resulting from cantharidal preparations.]

An Uncomplicated Prescription.

WE lately received from a correspondent a request to prepare the following:

℞ "Root of all Evil" (inclosed).....q.s. ad yrs. j.
Subscription for AMERICAN DRUGGIST.
Sig. G. F. H——.
Charleroix, Charleroix Co., Mich.

The compound has been regularly administered since the receipt of the above formula, and its effects are believed to have been, thus far, very satisfactory. We have excellent facilities for compounding prescriptions of a similar nature from the best materials to be found in the market, and are pleased to solicit the patronage of those whose case requires the like treatment.

"WHAT is a pharmaceutical association?" asked a little damsel who had carefully spelled out the long name in the paper, and the old gentleman, aroused from a perusal of the stock list, answered: "Farmer'cuticle association? Some of those fellows that go around skinning the farmers, I suppose."

THE destruction by fire of the Philadelphia quinine factory is not only a bitter loss to the owner, but will cause people all over the country to have the cold chills.

To Thin Shoe Blacking use vinegar or sour beer, and shake well.

PHARMACEUTICAL CALENDAR.—APRIL.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Tues. 1st.	Davenport (Iowa) Pharm. Assoc.—Annual M.	Wed. 9th.	Cincinnati (Ohio) Coll. of Pharm.
	Maryland Coll. of Pharm.—Meet.		New York Board of Pharm.
	Chicago Coll. Pharm.—Annual Meet.	Thurs. 10th.	Newark (N. J.) Pharm. Assoc.
	St. Joseph (Mo.) Pharm. Assoc.		California Pharm. Soc. and Coll. Pharm.—Quarterly Meet.
	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.		Philadelphia (Pa.) Coll. of Pharm.—Alum. M.
Wed. 2d.	Rhode Island Pharm. Assoc.—Quarterly M.		Maryland Coll. Pharm.—Baltimore.
	Indianapolis (Ind.) Assoc. of Pharmacists.		N. Y. German Apoth. Soc.
Thurs. 3d.	Louisville (Ky.) Coll. of Pharm.		Lancaster Co. (Pa.) Pharm. Assoc.—Anl. M.
Fri. 4th.	American Chemical Soc.—New York.	Tues. 15th.	St. Louis (Mo.) Coll. Pharm.—Tr. & Alum. M.
Mon. 7th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.		Philadelphia (Pa.) Coll. of Pharm.
	Pittsburgh Coll. of Pharm.—Quarterly M.		St. Joseph (Mo.) Pharm. Assoc.
	National Coll. of Pharm.—Anl. M., Wash'n.	Tues. 22d.	Boston (Mass.) Druggists' Assoc.
Tues. 8th.	Pittsburgh Coll. of Pharm.—Trust. M.	Thurs. 24th.	Kings Co. (N. Y.) Board of Pharmacy.—B'klyn.
	Massachusetts Coll. of Pharm.—Boston.	Mon. 28th.	St. Louis (Mo.) Coll. of Pharm.—Annual M.
	National Coll. of Pharm.—Washington.		

American Druggist

Vol. XIII. No. 5. NEW YORK, MAY, 1884. Whole No. 119.

ANEMONE PATENS.*

AMERICAN PULSATILLA.

OFFICINAL PART. — The flowering herb of Anemone patens *Linn.*, var. Nuttalliana *Gray* (U. S. P., 1880). Natural Order Ranunculaceæ, Tribe, Anemoneæ.

COMMON NAMES.—In botanical works the plant is called Pasque-flower, derived from the European species, which flowers at Easter.

If it comes into general use as a medicine, the name American Pulsatilla will most probably be that under which it will be known commercially.

BOTANICAL DESCRIPTION.—Anemone patens is a very conspicuous flower in early spring, found in prairie regions of Illinois, thence west to the Rocky Mountains, and northwest. The stem rises about four inches out of the ground, and is terminated by a large, erect, solitary, light bluish-purple flower. Below the flower, encircling the stem, is a many-parted floral leaf, covered with silky hairs, as are all parts of the plant. The true leaves are not expanded at flowering time, but are afterwards developed from the root of the plant, and are palmately divided into many linear lobes.

The fruit is a head of achenes, with long silky tails. It is borne on a stalk which is greatly elongated after the plant has flowered.

BOTANICAL HISTORY AND SYNONYMS. —The plant was first described as Clematis hirsutissima by Pursh (1814), from a specimen collected by Lewis and Clark while on their Western expedition. Nuttall, in 1818, transferred it to the genus Anemone, where it properly belongs, and named it Anemone Ludoviciana, which name was changed by De Candolle, shortly afterwards, to Anemone Nuttalliana. The plant belongs to the section Pulsatilla of the genus Anemone, distinguished by having the achenes prolonged into hairy tails; and by many botanists this is considered a distinct genus. Sprengel adopted this view of the subject, and called the plant Pulsatilla Nuttalliana (1825).

Anemone patens (the typical species) is found in Siberia, and was discovered in British America by Hooker, and included in his Flora Boreali-Americana. For some years the variety (Nuttalliana) was not distinguished from the plant collected by Hooker, and was accordingly called Anemone patens in Torrey and Gray's Flora, and Pulsatilla patens in Gray's Genera. It is only in late years that the plant has been recognized as a distinct variety, and it was named Anemone patens var. Nuttalliana, by Gray, in his Manual, fifth edition (1867).

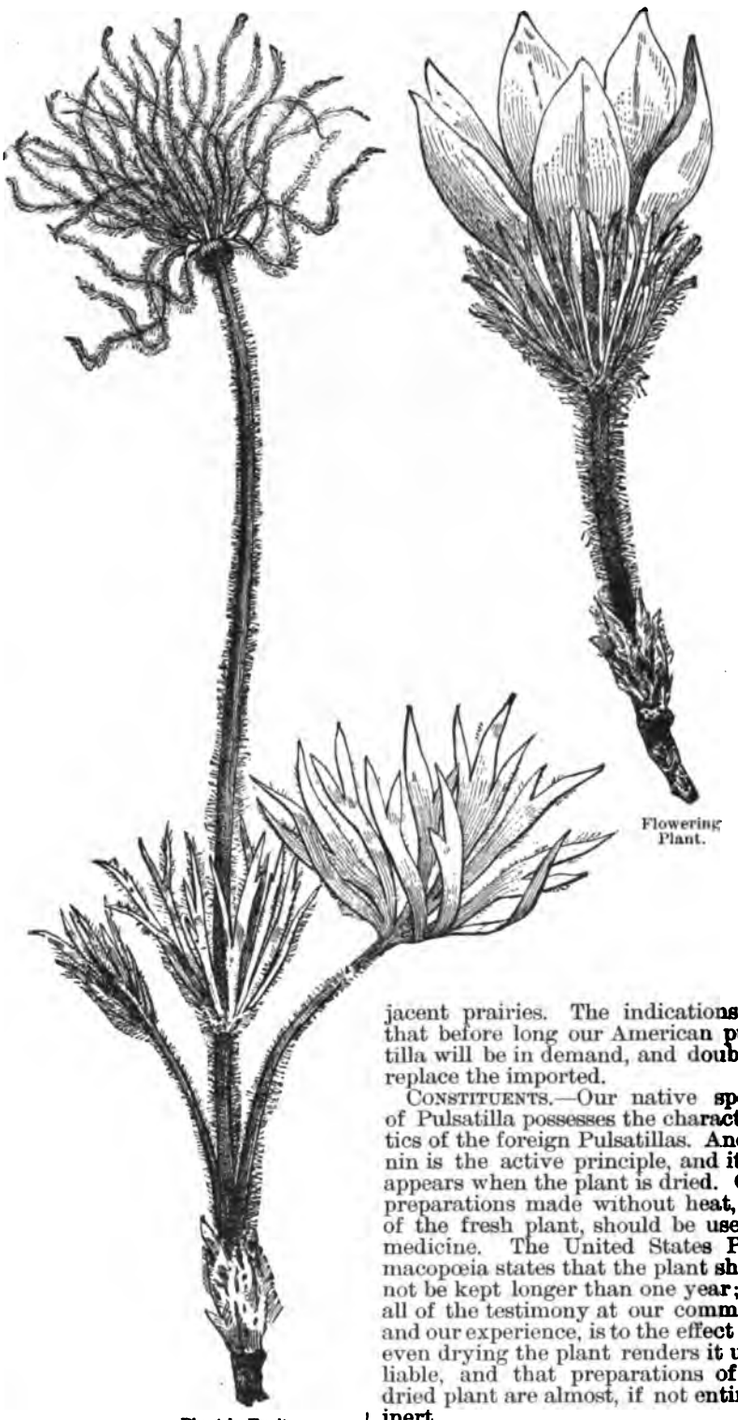
ALLIED SPECIES. — Anemone alpina *Linn.* is the only other native species of the section Pulsatilla. It can be readily distinguished by the involucre consisting of three distinct, petioled eaves, in consequence of which it was considered a distinct section (Preonanthus) of the genus, by De Candolle.

It is found in the Rocky Mountains, extending north into British America, and is also found in many different varieties in the mountains of Europe.

CHARACTERISTICS.—All parts of fresh Anemone patens are acrid and very irritating. Dr. W. H. Miller informs us that his hands have been badly blistered, in consequence of the juice having spattered over them while pressing the plant. The vapors evolved from the fresh juice are of such an acrid nature as to have inflamed the eyes, and have closed them temporarily. For this reason, persons refuse to work with the fresh herb, and botanists have been known to severely irritate their hands simply from contact with the recent plant.

COMMERCIAL HISTORY.—To Dr. W. H. Miller, of St. Paul, Minn., and his sons, is due the credit of having introduced American pulsatilla. The only demand for the plant, at present, is from Homœopathic physicians; and hence we find that pharmacists generally have no acquaintance with such a drug or its preparations. The wholesale druggists of St. Paul, Minn., and of Fon du Lac, Wis., inform us that they have no demand for it. Since the Northwestern prairies must supply the plant, it is reasonable to suppose that the prominent houses of the cities we have named would receive orders for American pulsatilla, if it were in any way a commercial drug.

A prominent homœopathic firm of New York writes us that, in consequence of the readiness with which it decomposes, they have the plant carefully tinctured in their branch house of the Northwest. In Chicago, it can easily be obtained fresh from the adjacent prairies. The indications are that before long our American pulsatilla will be in demand, and doubtless replace the imported.



Flowering Plant.

Plant in Fruit.

CONSTITUENTS.—Our native species of Pulsatilla possesses the characteristics of the foreign Pulsatillas. Anemonin is the active principle, and it disappears when the plant is dried. Only preparations made without heat, and of the fresh plant, should be used in medicine. The United States Pharmacopœia states that the plant should not be kept longer than one year; but all of the testimony at our command, and our experience, is to the effect that even drying the plant renders it unreliable, and that preparations of the dried plant are almost, if not entirely, inert.

MEDICAL HISTORY.—Anemone patens was the chief medicinal plant of the Minnesota tribe of Indians. They considered it a "cure-all," and valued it highly, and it was by their recommendation that the plant was brought to the notice of Dr. W. H. Miller.

The first recorded recognition that we can find of American pulsatilla, is a note in Griffith's Medical Botany (1847), which was followed by a recommendation from Dr. Clapp, in his account of the medical plants of

* From "Drugs and Medicines of North America." By J. U. and C. G. Lloyd (vol. I., No. 1), Cincinnati, 1884. Condensed from the original, and published by permission of the authors.

the United States (1850), and by Dr. John King, in his Dispensatory of 1852. These seem to have been only suppositions, drawn both from the relationships which exist between this plant and the European Pulsatillas, and their similar acrid properties. At any rate, these authors bring no evidence to indicate a personal experience with the plant, and produce no reference to show that others had employed it.

About the year 1854, Dr. W. H. Miller, of St. Paul, Minn.. was induced to experiment with the plant by an Indian who informed Dr. Miller that it was the "great medicine" of the Northwestern tribes of Indians. At that time the plant grew in abundance over where is now the city of St. Paul, and Dr. Miller has used it in his practice from that date. In 1862, Dr. A. W. Miller, the son of Dr. W. H. Miller, presented a thesis to the Philadelphia College of Pharmacy, which was afterwards published in the *American Journal of Pharmacy*. This paper introduced the plant to the authors of the United States Dispensatory, and n the twelfth edition (1865) it was briefly considered in that work under Nuttall's name, Anemone Ludoviciana, which was the term by which the plant was known to and recognized by the Messrs. Miller. Although Dr. Miller valued the plant highly, and was a member of the Regular school of medicine, we cannot find that others of that section have taken hold of it. However, these statements brought the plant before Professor E. M. Hale, of Chicago, who experimented with it, and by means of a paper in the *Medical Investigator* brought it to the attention of homœopathic physicians. Dr. Burt, of Lincoln, Illinois, then "proved" the drug, and published the result of his observations in the *United States Medical and Surgical Journal*. Hale's New Remedies (1875), and Allen's Encyclopedia of Pure Materia Medica (1878), gave our American pulsatilla extended and favorable notices, thus bringing the plant creditably before the homœopathic section of the medical profession. Until 1882, the United States Pharmacopœia neglected all varieties of pulsatilla, but in the last revision introduced them, and recognized our American plant Anemone patens var. Nuttalliana, as one of the officinal species. There is no doubt that while this plant has been used successfully by one member of the Regular school of medicine, and by some Eclectic physicians, its recognition by our Pharmacopœia is due to the homœopathic branch of the profession.

In reviewing this subject, we must admit that our Anemone patens var. Nuttalliana is so nearly like the foreign allied species that there is no reason that the future supply of "pulsatilla" should not be derived from our native plant. The European species that are collected for medicinal use, differ from each other as widely as from the variety of the species indigenous to America. Experience has shown that a tincture prepared from our fresh herb is perfectly reliable, and we would prefer such a preparation to the tincture of European commerce, made by persons over whom we have no control, and whose reputations are not at stake.*

Nitrite of Sodium.

According to Ringer and Murell, nitrite of sodium is poisonous. Since the commercial nitrite is usually contaminated with about ½ of its weight of nitrate of sodium, and any given dose of the nitrite, therefore, only contains ½ of the pure salt, it would be dangerous to substitute the pure nitrite at the same dose.—*Rundschau.*

* The Medical Properties and Uses, which follow next in the original, are here omitted.

[Original Communication.]

THE SEPARATION OF MERCURIC FROM MERCUROUS IODIDE.

BY H. MACLAGAN.

According to most authorities, the separation of these two salts is a very easy and simple matter, the process being to treat the powder with certain solvents, such as alcohol, ether, etc., which are supposed to dissolve out the red without action on the other.

I have lately had to perform some analytical work in this line, and was at first considerably puzzled at the singular results obtained. A sample of mercurous iodide, which was believed to be pure or nearly so, was washed with ether, s. g. 0.725, and the liquid, on evaporation, left a yellowish residue, which became red when rubbed. After several washings, the result was weighed, and amounted to about one per cent. The washings were then continued, using the same quantity of ether for each, and weighing after each evaporation, with the result of a *steady* and *uniform* increase until six per cent was reached, when the washings were discontinued. The salt had become quite dark-colored, and metallic mercury was easily seen with the microscope. A quantitative analysis had shown that, making the usual allowance for loss, the iodide was pure, and this, added to the fact of the singular uniformity in the ratio of increase in weight of the deposit, and the fact that the total amount of red iodide obtained should have been soluble in one-tenth of the solvent used, pointed out clearly that it was being derived from the yellow iodide through some action of the ether. I have made a series of experiments to prove this, using different solvents of red iodide, and, as far as I have been able to ascertain, there is not a single one which does not more or less decompose mercurous iodide. Those experimented with were ether, s. g. 0.718; ether, s. g. 0.725 (Squibb's); ether 0.725, and alcohol 0.820, equal parts; alcohol 0.820, and chloroform. In each case one gramme of iodide was treated with six successive washings of 25 C.c. each of liquid, shaken occasionally at intervals of half an hour, and as much as could be poured off, filtered into a watch-glass and evaporated on the top of a drying oven, where the temperature was about 120° F., the weight being noted after each evaporation. The results were as follows, the figures representing the weight in grammes of the dry residue after evaporation of the solvent:

	No. 1. Ether 0.718.	No. 2. Ether 0.725.	No. 3. Ether and Alcohol.	No. 4. Alcohol 0.820.	No. 5. Chloroform.
1st.	0.0029	0.0044	0.014	0.0046	0.0007
2d.	0.0029	0.0044	0.0118	0.0045	0.0007
3d.	0.0026	0.0043	0.011	0.0044	0.0007
4th.	0.0034	0.005	0.0129	0.0031	0.0009
5th.	0.0028	0.0046	0.0105	0.0034	0.0009
6th.	0.0029	0.0049	0.0135	0.0042	0.0007
Total	0.0175	0.0276	0.0737	0.0242	0.0046

The residues from Nos. 1, 2, and 5 were yellowish, but became red when rubbed, those from the rest were red. The iodide in Nos. 2 and 3 perceptibly darkened on the addition of the first 25 C.c., and at the end they were of a dirty greenish color; the other three were only slightly discolored. The residues on the glasses were then treated each with its original solvent, to ascertain about the quantity necessary for solution.

No. 1 dissolved in 13 C.c., No. 2 in 10 C.c., No. 3 in 10 C.c., No. 4 in 6 C.c., No. 5 in 10 C.c. Thus showing that had the red existed primarily in the salt, it should almost all have been obtained in the first washing. For additional proof of this, two per cent of red iodide was added to the same salt previously used, and one gramme of the mixture treated with 25 C.c. of chloroform; the result was 0.0185, and a second 25 C.c. yielded 0.003. Next, one gramme of iodide was shaken as before with 30 C.c. of ether, s. g. 0.725, the ether filtered into a second bottle containing one gramme of iodide, and shaken from this into a third, then into a fourth, and finally into a watch-glass and evaporated (30 C.c. was used here, so as to have about 25 C.c. for the last gramme). The deposit weighed 0.0049, the same as obtained previously from only one gramme, and the salt in the first bottle darkened, while the other three were unchanged. One *decigramme only* of iodide yielded by treatment with the same ether 0.0047, and the residual salt in the bottle was treated with a large quantity of ether, the dark-colored sediment collected on a filter and dried, a globule of mercury resulting.

The iodide used in these experiments was made by double decomposition of mercurous nitrate and potassium iodide, and fulfilled all the requirements of the U. S. P. An analysis of it showed

Hg 607	theory	Hg 611
I 386	requiring	I 389

Iodide made in the officinal way gave precisely similar results.

It seems clear from these facts that there is some principle in these solvents (probably the same in all, as they are closely related) which decomposes mercurous iodide, and, therefore, while sufficient for ordinary purposes in separating the two iodides, they cannot be used for analytical work without making proper allowance, and this allowance must probably be determined in each case. As indicated, chloroform is to be preferred, and of that, 25 C.c. will dissolve about 20 milligrammes of mercuric iodide.

Chloride of Zinc Pencils and Paste.

The usual chloride of zinc pencils, produced by casting the salt in moulds, are generally found to be too hard, and to act too energetically upon the tissues into which they are inserted. Dr. Vulpius, therefore, recommends to dilute the mass with flour. He recommends to triturate 10 gm. (160 grains), each, of chloride of zinc and of wheat flour, without water, until a certain degree of plasticity has been reached, after which the mass is quickly transferred to a plate of glass covered with wheat flour, and rapidly moulded by hand to a disk of about 7 C.m. (2¾ inches) diameter. This disk is then cut radially into 16 segments, which are put into a drying oven for about six hours, when they are put into small vials securely stoppered, and rendered air-tight with paraffin.

These pencils are moderately flexible, and only slowly deliquescent; they have enough stiffness to allow being pushed into carcinomatous tissues. By age, however, they become less soluble, owing to a progressive action of the chloride of zinc upon the starch.

A diluted and plastic paste of chloride of zinc may be obtained by mixing equal parts of chloride of zinc with white bole, under cautious addition of a little water, and a sufficient amount of glycerin. Paste or pencils made of this last-named mass may be readily made in a short time, when called for, while those made with flour require some degree of experience, and need to be dried with heat.—After *Pharm. Centralh.*

Sozodont, according to the *Pharm. Rundschau*, consists of Venetian soap and Glycerin, each 60 parts; Alcohol, 200 parts; Water, 120 parts; Oil of Peppermint, 16 parts; Oil of Anise, 8 parts; Oil of Cinnamon, 4 parts; and Oil of Cloves, 1 part.

NOTES ON PHARMACEUTICAL APPARATUS.*

SOME years ago, Mr. Ince (I believe it was Mr. Ince) wrote thus, or to this effect: "I have a good deal of faith in a man and a pan, provided the one has brains and the other has capacity." These words forcibly conveyed to my mind that, in the opinion of the writer, a man of good average intelligence, with simple apparatus, sufficiently large for his purpose, could accomplish much in the way of manufacturing pharmaceutical preparations, and I think there can be little doubt that a pharmaceutical sermon, having "a man and a pan" for a text, could, in able hands, be rendered both interesting and instructive.

As a busy man, having my time pretty fully occupied with the duties of my calling, I merely propose to bring before you this evening some ideas concerning, and description of, a few simple but useful forms of pharmaceutical apparatus. I do so under the following circumstances:

Last year, a friend from South America, when visiting Liverpool, desired to see our laboratory, about which he had probably formed some exalted notions; but on being shown the very modest equipment, after some conversation, he said:

"If so much practical work can be accomplished by such simple means, send me some similar things, such as your experience suggests as being necessary and useful to commence with for a small laboratory, and to which I can add as occasion requires." The work (except percolators, retorts, and minor matters) was, with rough drawings, placed in the hands of Messrs. Thomas Rider & Co., engineers, of Manchester, and was by them executed in a highly satisfactory manner. . . . I must mention that our friend had already a high-pressure boiler working an engine and other machinery, and we had, therefore, to start with a reducing valve.

This valve is made of gun-metal, and is so arranged in the steam supply-main that it reduces the pressure therein from the actual pressure of the boiler, say sixty pounds, to two or more pounds per square inch, as may be desired.

The steam entering at A, and acting equally on the two valve-faces B and C, it will be seen there would be no passage but for the lever, which is weighted in such a manner as to allow just sufficient steam to pass through to produce the lower pressure and temperature. To the small union connection marked D is attached a brass tube to convey away any moisture from the upper chamber, which may accumulate by the condensation of steam as it is passing through the valve, and it also serves to prevent the possibility of a vacuum being formed which would hold the valves in check, and prevent them from working freely.

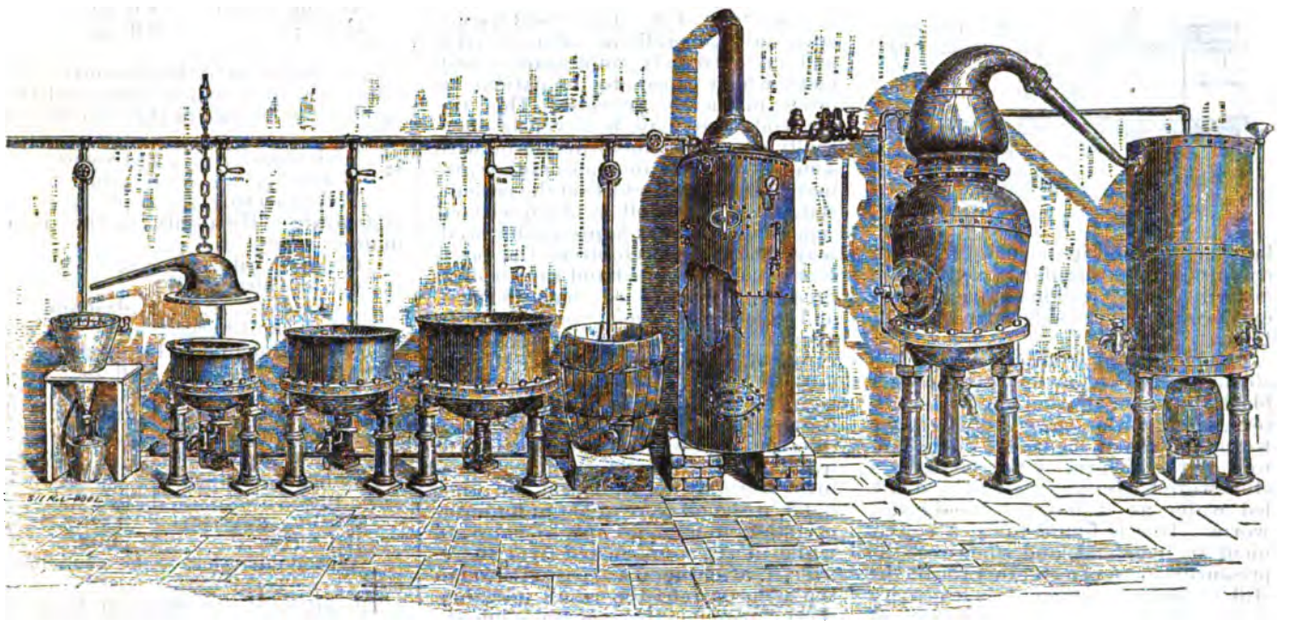
As most pharmacists would provide a boiler specially for working such apparatus as I am about to describe, let me say a few words about boilers, the choice of one being a matter of some importance. Our own is small, upright, tubular, four and one-half feet high by twenty-six inches diameter; it stands on nine inches of brick-work, occupies but little space in the laboratory. An iron pipe, covered with felt to lessen condensation, runs from it around two walls of the building to supply steam to stills, pans, funnels, etc.

To have a boiler too small for the purposes required is a decided mistake; it is better to err in the opposite direction, as any one with experience in these matters will know how trying it is to run short of steam when two or three preparations are in hand and a lot of evaporation has to be done. There is, of course, a limit in size, beyond which it is not desirable to go, first, on account of space, and secondly, on the score of economy in time and fuel; for, if a much larger boiler is used than is really required, there is so much more water to be heated each morning at the expense of these two items.

Boilers are usually described as of one or more horse-power, and to obtain this unit in the most simple form the following conditions are necessary, viz., one square foot of fire-grate and one square yard of heating surface; these, with an expenditure of fourteen pounds of coal, evaporate one cubic foot, or rather more than six gallons of water per hour, which, in the form of steam applied to a Boulten-Watt engine, would perform the work of one horse for that period of time. A two-horse boiler is sufficiently large, where machinery is not used, and an upright, tubular one is the best for getting up steam quickly. In this, coke should be used in preference to coal, as the latter is liable to choke the tubes with soot very readily. Although it should be tested to bear a pressure of at least one hundred pounds to the square inch, not one-tenth this amount is generally used for pharmaceutical purposes.

With a low-pressure boiler, then, a reducing valve is not required, and the steam is taken direct from it to the point at which it has to be used, merely interposing a screw stop-valve on the main, which in such position is better than an ordinary tap, as it affords a more convenient means of regulating the supply. In the arrangement shown, a tub, three pans, and a funnel are placed on one side of the boiler; a still and condenser on the other side. Into the tub passes a block-tin pipe, terminating on the bottom in a flat, perforated coil, a short distance above which rests a perforated false bottom, such an arrangement being convenient for steaming and boiling purposes where the ingredients are bulky, as in the case of decoctum sarzæ comp., etc.

The pans are of copper, jacketed with cast-iron, leaving a steam cavity over the lower part only. This provides a sufficient heating surface for rapid evaporation, and avoids, to some extent, the inconvenience and possible deterioration of the product caused by the drying, which always occurs on the outer edge of the liquid when it comes in contact with the sides of the pan, when it is jacketed to the top. Constant stirring will, of course, obviate this to some extent, but even with this and the old arrangement, it is not easy to remove the difficulty.



Symes' Pharmaceutical Apparatus.

The capacities are forty, twenty, and ten gallons, and the internal measurements, 30x24, 24x20, and 18x17 inches respectively, and such a one is fitted with a check valve or tap, vacuum valve, and a siphon pipe and back pressure valve at the outlet for waste steam; it is self-contained, requiring only the attachment of the steam supply and waste pipes, so that, if thought desirable, the relative positions could be changed with ease.

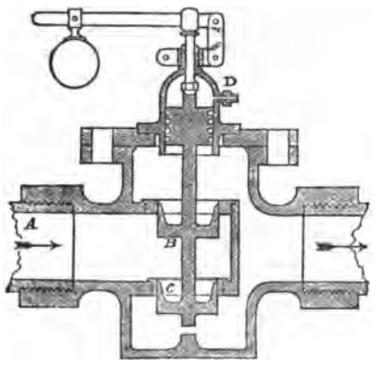
The steam-funnel is made entirely of copper, well tinned inside, and the steam chamber is continued to the top. The steam supply enters at a three-eighth-inch union near the top, makes the circuit of the chamber, and passes out at right angles to the side of the funnel, more or less condensed, near the bottom. The exit tap is somewhat large in proportion to the funnel itself, the object of so having it being to prevent any possibility of choking up, and to provide a good exit for any thick or partly solid filtrate. The interior of the funnel is fitted with a tinned wire cage work, which can be removed at will, its obvious use being to prevent the filtering material from touching

* Read by Charles Symes, Ph.D., at a meeting of the Liverpool Chemists' Association. Reprinted from the Pharm. Journal of March 29th, 1884.

the sides of the funnel, and for preserving a clear passage for the filtrate in all directions, whilst the support given is practically equal to that given by a solid surface. Near the top is placed a small safety valve which is regulated to blow off at five pounds pressure.

The main steam-pipe, if not required for drying closet, should terminate in this direction with a T-piece, fitted with screw-tap and hose connection so that a rubber tube can be attached when desired; it is useful for many purposes, one example is steaming nux-vomica beans before grinding.

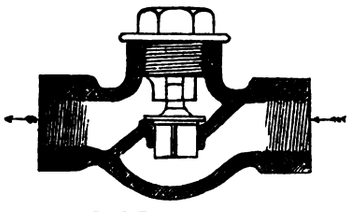
The still is placed on the opposite side of the boiler; it is of copper with a cast-iron jacket similar to those on the pans, and has fittings like them. In the body of the still is a gun-metal hand-hole for removing any solid residue and for cleaning-out purposes. It is also fitted with a removable, perforated false bottom for separating any solid matter from the liquid contents drawn off by the tap underneath. The distil-



Reducing Valve.

late is condensed in a block-tin worm contained in a circular wrought-iron cistern of sixty gallons capacity, the exit being from the side near the bottom.

Passing direct from the boiler is a steam-pipe which terminates in another block-tin worm at the top of the cistern, going within the coil of the other worm and out at the centre of the bottom of the cistern. Underneath is a stoneware barrel to receive the distilled water as it flows from the last worm. This is found to be a convenient arrangement, and when ever the pressure is increasing unduly rou nd the still or pans, or when it is necessary to stop the working of one or more of these, then the distilled water-tap can be turned on, with the result that one has a good supply of distilled water, practically free of cost.



Back-Pressure Valve.

It has been mentioned that each pan is fitted with a siphon-pipe and back-pressure valve. The former prevents waste of steam and consequent power; a foot of condensed water in the pipe would represent, approximately, half a pound of steam pressure. The latter prevents the waste steam from one pan from entering the chamber of the next, replacing a tap, and acting automatically. It is exceedingly simple, as will be seen from the drawing. The arrows indicate the direction in which the steam (or condensed water) passes, lifting the small valve in the centre and moving forward freely; but if it attempts to pass in the opposite direction, the more tightly the valve is closed against it. The apparatus described does not by any means constitute the equipment of a pharmaceutical laboratory, but it forms some of the essentials for every-day work, and a foundation on which to build. The capabilities are but moderate, still the expense is moderate also. The cost, exclusive of main supply and waste steam pipes, the tub and stone barrel, is £110. A two-horse, upright, tubular boiler costs £28 or £30, so that the whole could be fitted up for something like £150. The still, pans, and funnel are tested by hydraulic pressure to bear 20 pounds on each square inch of surface.

Doubtless, different pharmacists work their apparatus at different degrees of pressure. My experience is that with pans of the size mentioned, a pressure of from 2 pounds to 5 pounds to the square inch, giving a temperature of from 216° to 225½° F., is the most suitable when stirring is actively continued, and when not stirring, a nominal pressure, say of ½ pound to the square inch is quite ample.

[Original Communication.]

COD-LIVER OIL AND ITS EMULSIONS.

BY REINHARD LUCKE, PH.G.*

A prejudice exists against cod-liver oil on account of its taste, which is repulsive to many, though children often become fond of it. The oils of darker color have generally an offensive odor and an extremely unpleasant harsh taste, which causes to the patient an often invincible aversion. This unpleasant taste may, however, be effectually covered by flavoring the oil with some oil of bitter almonds or other aromatic oil, to suit the taste of the patient. But, even if the oil is taken without repugnance, which happens almost always with small children, the oil is often badly digested and causes disagreeable eructations, nauseousness, and sometimes even vomiting. To avoid this, the oil is given in the form of emulsion, that is, so subdivided and suspended in a mucilaginous liquid as to be almost ready for absorption by the villi of the small intestine, and by the lacteals, so as to leave to the pancreatic juice very little work to do, while, on the other hand, if the oil were given in its natural state, it is more apt to nauseate while in the stomach and then, moreover, if, after the oil had passed through the pylorus into the small intestine, there be not enough pancreatic juice to convert the oil into chyle, as the emulsion produced by the action of the pancreatic juice on oils and fats is called, the above-mentioned symptoms of incomplete digestion would be more likely to occur. From this I would infer that cod-liver oil is best given in the form of emulsion. But the opinions of many physicians differ on this point, some think the oil is best taken in its pure state, as the pancreatic juice would be perfectly able to take care of the oil itself; while others prefer to give it in the form of an emulsion, of which there are various modes of preparation.

Small quantities of emulsions of cod-liver oil, as well as all other fixed oils, may be prepared by rubbing in a mortar five parts (by weight) of the oil with two parts (by weight) of acacia and then adding at once five parts (by weight) of water.

This is, I think, the best way of making an emulsion in small quantity, such as generally ordered by the physician, as it is the quickest, and I never knew it to fail. However, emulsions of cod-liver oil, mostly combined with the hypophosphites of calcium and sodium, have become an article of trade, and large quantities are sold in the States, and other methods of preparing emulsion of cod-liver oil have been resorted to by most pharmacists.

Of the various ways of accomplishing this with which I made myself acquainted, is one to make it with mucilage of salep, prepared by infusing powdered salep with cold water; another is to make it with yolk of eggs, or with mucilage of tragacanth. The method which I found most extensively used is to make it with decoction of Irish moss. A good formula, known as the College formula, for making emulsion of cod-liver oil with hypophosphites of lime and soda reads as follows:

Irish moss.....	6 drachms.
Water.....	4 pints.
Boil down to.....	2 "

and strain; then add

Cod-liver oil.....	2 "

and mix thoroughly so as to form an emulsion. Next add

Oil of Gaultheria..	15 drops.
Oil of Cinnamon..	15 "
Oil of Bitter Almond....	20 "

Dissolved in

Alcohol....	1 fl. oz.

And finally:

Hypophosphite of Calcium..	4 drachms.
Hypophosphite of Sodium.....	4 "
Chloride of Sodium.....	1 drachm.
Boiling Water....	4 fl. oz.
Glycerin.....	8 fl. oz.

Mix.

A modification of this formula is the following, after which I prepared the emulsion every two or three weeks for a year:

Irish moss.....	2½ troy oz.
Water.....	6 pints.
Boil down to.....	4 "

and strain. Then mix in the usual manner with

Cod-liver oil.....	q. s.
Oil of bitter Almonds.....	1 drachm.
Oil of Gaultheria.	½ "
Oil of Cinnamon..	15 drops.
Alcohol.....	4 fl. oz.
Hypophosphite of Calcium.....	1 troy oz.
Hyphosphite of Sodium.....	1 "
Chloride of Sodium.....	1 drachm.
Boiling water.....	8 fl. oz.
Glycerin.....	1½ pints.

Water, enough to make a 50% emulsion.

The fifty-per-cent emulsion obtained, measures from 1½–2 gallons. An emulsion properly prepared after this formula yields a product which leaves nothing to be desired. It is a perfect emulsion, no oil globules can be detected by the naked eye; it is very fluid; it is of a milk-white color and has an agreeable flavor and it never separates: a number of bottles filled with this emulsion showed no change after having been kept in the store for nearly one year.

*The main difference between the last two formulas, besides the latter being for a larger quantity, is that in one to the decoction of Irish moss a given quantity of oil is added, while in the other so much oil is gradually added with constant beating as will emulsify, which quantity is varying, owing no doubt to the varying quality of the moss employed to make the decoction. The reason for taking as much oil as will emulsify is that, by so doing, the emulsion will be more fluid than otherwise, as I found the emulsion made after the first process mentioned sometimes becomes quite jelly-like, there being more decoction of Irish moss present than was necessary to emulsify the oil. To guard against putting too much oil into the decoction, I always reserve a portion of the decoction, which I add when the oil globules can no longer be extinguished by beating with a common egg beater, which happens after having emulsified about one gallon of cod-liver oil.

* Extract from a Thesis presented to the College of Pharmacy of the City of New York, 1884.

One point has to be strictly observed in order to insure success, that is, the decoction must be well prepared. The Irish moss, after having been washed thoroughly with cold water, is put into a suitable vessel and heat is applied. The decoction is then prepared by slowly raising the temperature to the boiling point, stirring constantly to hasten the evaporation and to prevent the moss from adhering to the bottom of the vessel and so be burnt, which would tinge the decoction yellow and thereby make it unfit for use, as it would also impart a yellow color to the emulsion. I found that if the evaporation be not accelerated by much stirring it would not only easily be burnt, but it would also lose in its emulsifying power; an experiment which I made regarding this point showed that after letting the decoction boil for over an hour, it had been transformed into a thin liquid with small particles of matter floating about, and it could not be used for making emulsion.

When the decoction has carefully been evaporated down to about four pints (exact measure is not necessary), it is forcibly strained through coarse muslin into a large open vessel and then, while hot, about one or two pints of oil are added and beaten into an emulsion and afterwards more oil is added in small quantities at a time (one-half pint) till it will no longer emulsify, when a small quantity of reserved decoction is added, and the whole will then make a perfect emulsion. The aromatic oils, dissolved in the alcohol, are then added, afterwards the glycerin and at last the salts, dissolved in the boiling water, are duly incorporated with the emulsion in the tube. Then I transfer the whole to a two-gallon bottle, which is graduated, and rinse the tube with some water and pass this into the bottle, and then I add water enough to make the emulsion measure twice as much as the amount of oil used, that is, to make it a fifty-per-cent emulsion.

As I endeavored to show, my formula is not as vague as it may at the first glance appear to be, and if worked properly as explained, which requires about two hours' time, it proves to be highly satisfactory.

Vaginal Suppositories of Gelatin.

Mr. Ad. Vomacka, in reply to an inquiry, gives the following instruction for making vaginal gelatin suppositories.

Take transparent gelatin, soak it over night in water, and then add to it six times its weight of glycerin. If the mass is to preserve its transparency for some time, it is necessary to remove all the water which the gelatin has absorbed, by evaporation. According to the density of the glycerin, more or less of gelatin must be used. Nearly all the usual remedies may be mixed with this mass, f. i., iodide of potassium, sulphate of zinc or copper, etc., excepting tannic acid, which forms an insoluble compound with gelatin. If tannic acid is to be applied, it is necessary to replace the gelatin by agar-agar, a Japanese vegetable gelatin, derived from an alga.* In the case of agar-agar, however, the relation of glycerin to water is different. Agar-agar does not furnish a jelly with glycerin alone, but forms a transparent mass, which is tough when heated. Hence, an addition of water is here absolutely necessary. 1 part of agar-agar is soaked over night in water, of which it takes up nearly 50 parts, 10 parts of glycerin and 20 more parts of water are then added, and the whole evaporated to the required consistence. During the fusion of the mass, stirring is to be avoided as much as possible. Ascending air-bubbles are to be removed from the surface with a stiff card-board, so as to keep the mass clear and transparent. The prescribed remedies having been added, either in form of solution or in very fine powder, the mass is then poured out into suitable forms and allowed to congeal. — *Pharm. Rundschau.*

* Japanese isinglass is prepared chiefly from *Gelidium spinosum;* Agar-agar (which is *not* identical with the former), is prepared from another alga, *Eucheuma spinosa.*—Ed. A. D.

[Original Communication.]

A NEW REACTION FOR THYMOL OR PHENOL.

BY PROF. J. F. EYKMAN, TOKIO, JAPAN.

If a small crystal of thymol is dissolved in about 1 cubic centimeter of glacial acetic acid, and this solution mixed with about one-fifth its volume (5 to 6 drops) of concentrated sulphuric acid, a fine blue color is produced by allowing one drop of nitric acid to flow down to the bottom of the test-tube. On shaking, the whole liquid acquires this blue color. In presence of not too small a quantity of thymol, the liquid appears dichroic, being red by transmitted, and dark-blue by reflected light.

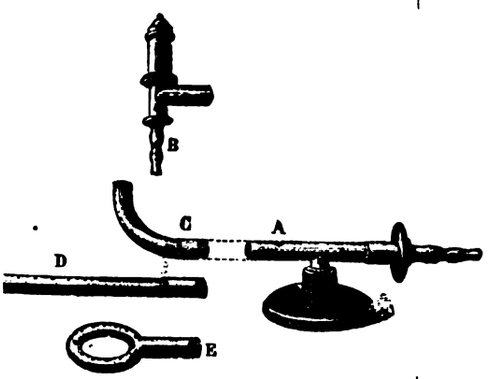
Phenol differs from thymol, in this reaction, by causing the appearance of a fine violet-red color.

Salicylic acid, menthol, camphol, and borneol give no color-reaction under the above conditions.

Tokio, Feb. 4th, 1881.

MULTIPLE GAS-BURNER.

Prof. d'Arsenval, of the College of France, is the inventor of a burner for laboratory uses which, at a comparatively small expense, furnishes a variety of flames. Figure 1 shows the



base A, to which the various tips can be attached. B is intended for an oxyhydrogen flame, C for a Bunsen burner, D, a long tube with numerous small openings, which serves to heat a reduction-tube for organic analyses (as shown in Figure 2); E, a ring with

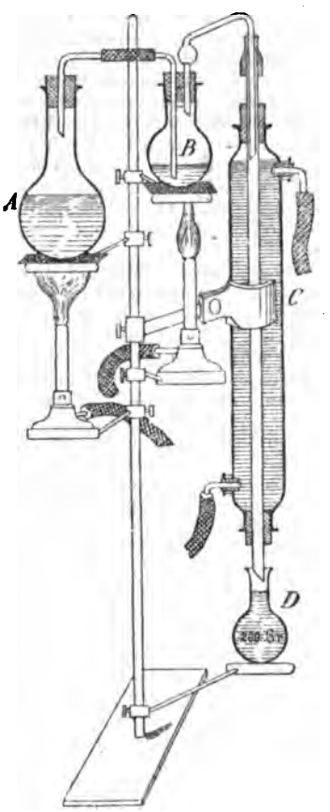
small openings adapted for evaporating dishes, sand-baths, etc. The arrangement for heating a reduction-tube recommended by the inventor consists of two bricks resting on an even surface, and provided with two suitably bent pieces of strap-iron for supporting the tube.—*La Nature.*

French Shoe Dressing.

Vinegar, 2 pints; soft water, 1 pint; glue (fine), 4 ounces; logwood chips, 8 ounces; powdered indigo, 2 drachms; bichromate potassium, 4 drachms; tragacanth, 4 drachms; glycerin, 4 oz. Boil together, strain, and bottle.—*Scient. Am.*

APPARATUS FOR DETERMINING VOLATILE ACIDS, ETC.

The apparatus here described has been devised and used by B. Landmann specially for the separation and estimation of acetic acid in wine, but it may also be employed for many other purposes, where a volatile liquid is to be rapidly separated. Fifty cubic centimeters of the wine or other liquid which is to be freed from volatile substances are introdueed into a flask *B*, into which 300 C.c. of water had previously been placed, and the flask connected, an one side with a condenser, and on the other with a flask containing 500 C.c. of water. The latter is raised to boiling, and the steam, passing over through the narrow connecting tube, and rapidly bubbling through the liquid in *B*, soon drives over all the volatile constituents of the wine (together with watery vapor). To prevent particles of the liquid, which might have been thrown upwards mechanically, from finding their way into the condenser, the exit tube has a globe blown upon it, and has an upward trend, before it passes into the



condenser. The operation is interrupted when 200 C.c. have collected in the receiver, which requires about 45 minutes. The original volume of wine is thereby reduced to about ¼ of its original volume, and all possibility of injury to its extractive constituents avoided.

In the case of wine, the acid of liquid caught in the receiver is titrated as acetic acid.—*Zeitsch. Anal. Chem.*, 1883, 516.

Arbutin.

Arbutin, the active principle of uva ursi, is a potent diuretic, and is converted by boiling with acids or under the influence of fermentation, into glucose and hydrochinon. Dr. Mensche (*Centr. f. Klin. Med.*) gives the following results of observation upon the action of the principle: 1. In many cases it has proved to be a valuable diuretic. 2. It may be given in large doses without harm. 3. It is converted into hydrochinon in human urine. The observer remarks that it has a specially beneficial action in vesical catarrh and he suggests its employment in place of uva ursi and also as a remedy for gonorrhœa, in place of injections.

[ORIGINAL COMMUNICATION.]

THE MANUFACTURE OF OIL OF TURPENTINE AND RESIN.

BY WILLARD B. SHUPTRINE, PH.G.*

IN the manufacture of oil of turpentine and resin, a convenient portion of pine land† is taken, where the necessary homes are constructed, and early in January boxing the trees commences which lasts until the last of March. All the pines over twelve inches in diameter are boxed, namely, incisions are cut near the base of tree, preferably in the south side, the boxes being about ten inches broad and made to hold from two to three pints. Some trees of larger size having from three to five boxes, according to size of trunk; oblique gutters are cut above the boxes, to convey the turpentine in as it exudes. They meet over the center of the box from each side, inclined downward. The boxes are divided into lots of 10,000 each, which is called a crop and is placed under the supervision of a man.

The exudation commences immediately and very soon the boxes are filled, when it is dipped by means of wooden shovels, emptied into pails, then into barrels placed in convenient places, each barrel containing 280 lbs.

The boxes, when properly attended to, fill about seven times during the season, from March to October.

As the exudation becomes slow, new streaks are made, reaching through the bark and into the alburnum to the depth of about four concentrical circles.

The turpentine obtained during the first year is richer in oil and produces the best qualities of resin; it is called "yellow dip" or "pure dip."

That which congeals on the face of the trees is scraped off in October; it contains very little oil, having lost the greater part by evaporation.

During the winter, the stock of oil and resin, which accumulates, is disposed of and arrangements made for commencing with the warm weather of the following season.

The same farms are seldom worked longer than three or four years, as the trees become badly exhausted in that time, and there are new trees to work upon near at hand.

The still‡ is made of copper, varying in capacity from eight to thirty barrels, some being even larger than this. It is inclosed in a brick furnace so that heat may circulate around it. It is supplied with a movable top through which the "gum" or crude turpentine is put. At the base there is a large stop cock or gateway through which the residue is drawn, after the distilling process is completed; it is also supplied with a small stop cock at top, through which the water enters. The movable top is connected with a large coil of pipe for condensing, which is immersed in a tank filled with cool water; the end of the pipe is brought through the side of the tank near the base so as to empty its contents into a barrel for that purpose: this barrel or receiver is furnished with two openings, one near the bottom, the other near the top.

A convenient quantity of turpentine is placed in the still, being very dirty, containing leaves, sticks, etc. Heat is applied and very soon the vapor begins to rise and is condensed while passing through the coil; it is emptied into the receivers. At first a greater part of it is water; the water immediately falls to the bottom because of its greater specific gravity and incompatibility; as the receiver is filled, the water is drawn out through the stopcock at base, while the lighter volatile oil is drawn from that at top and transferred to barrels.

As the distillation progresses, the quantity of water becomes small, when more is added through an opening at top of still. This process is continued until the distillate is largely water (one part of oil to twelve of water) when the fire is removed; the movable top is also taken away, and it is allowed to stand for a few minutes until most of the water passes away; then much of the straw and sticks is removed by means of strainers on long handles; after this is done, the large stop-cock is opened and the liquid resin conveyed to strainers to remove all dirt, etc. The first strainer is, of course, wire, to remove large pieces of trash, then it is passed through cotton batting made for that purpose, lastly through a strainer made of wire gauze of No. 40 to No. 60; No. 60 being used for best qualities of resin; it is then allowed to stand in large vats until it is partly cooled, when it is removed to barrels, each containing 280 lbs.

The resin from turpentine of the first year is classed "window glass" then "virgin" which are the finest qualities; the lower grades are made from "gum" of succeeding years and often by improper stilling.

The oil is put in barrels, and after being allowed to stand for a short while, deposits a sediment, mostly of suspended organic matter; this is removed, the barrels sealed up, when it is ready for market.

The oil is now comparatively pure, and in this state we find it in the stores. To further purify it, it should be distilled from caustic potassa.

When the manufacture is conducted economically, a profit is realized when twenty-five cents per gallon is received for the oil, and from two dollars to four dollars per barrel for resin according to grade.

Large quantities of these are exported yearly, and their manufacture is one of the most paying industries of those of our States so abundantly supplied with suitable trees to operate upon.

* Extract from a Thesis presented to the College of Pharmacy of the City of New York, 1884.

† The author's account refers to the pine-lands extending through the Carolinas, Georgia and Florida, over a tract of about six hundred miles in length, and one hundred miles in width. Unfortunately, a considerable portion of valuable pine-land has quite lately been destroyed by fire.

‡ Compare also the article by Dr. Thomas F. Wood, of Wilmington, N. C., in NEW REM., 1880, p. 289: "Note on Turpentine, Rosin, and Allied Products."

Cod-Liver Oil with Iodide of Iron.

THIS preparation may be readily made by using the solution of ferrous iodide (described in our preceding number, p. 67).

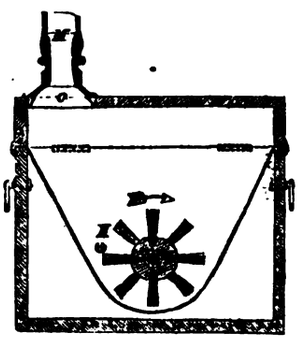
Solution of Ferrous Iodide.....	50 parts.
Cod-Liver oil, enough to make.....1,000	"

Mix the two liquids and shake vigorously. The glycerin, while forming a sort of emulsion with the oil, produces an intimate mixture of the latter with the solution. On standing, the mixture becomes clear in a short time. It is then again thoroughly shaken up, and this is repeated several times. Finally the clear oil is carefully separated from the sediment and filtered through paper.

[The author states that the product contains five centigrammes of ferrous iodide in each tablespoonful. But it seems to us that the oil will only take up a portion of the iron salt; at all events, it requires to be demonstrated that is takes up the whole of it.]—*Boll. Farm.*, 1883, 155.

Blue or Yellow Glass Bottles for Pharmaceutical Preparations.

DR. F. MOLNÁR, Apotheker, Buda-Pest, has put to spectroscopic proof the question that has been long debated, whether the blue glass bottles so constantly used in pharmacies protect their contents from the chemical action of light. He found that the blue or cobalt glass allowed to pass part of the red rays of sunlight, and all the blue and violet. The yellowish-brown bottle-glass permitted the passage of the red and orange rays only, the green, blue, and violet rays being completely stopped. A second experiment was made with chloride of silver paper. A piece of paper was taken, a third covered with cobalt glass, a third with the brown glass, a third left unprotected, and the whole exposed to the sunlight. After ten minutes it was found that the part covered by the blue glass was almost as much darkened as that left uncovered, while the discoloration had not yet begun under the brown glass. It is well known that blue, violet, and ultra-violet rays are the most active chemically, and these experiments show that the blue glass bottles now in use are best adapted for promoting chemical action in their contents. The details are published in the *Chem. and Drug.* from *Gyogyasz. Hetilap.*



APPARATUS FOR THE INHALATION OF FINE POWDERS.

FOR the purpose of facilitating the application of finely-powdered substances by way of inhalation, Joseph Hassler, of Bad Solen (near Wiesbaden), Germany, has patented the apparatus here figured.

It consists of a box containing a trough in which revolves a circular brush, the rapid turning of which causes the powder to be carried around. As each successive bunch of bristles comes in contact with the projecting pin *H*, the powder is thrown forcibly upwards and passes through the sieve *O* in form of fine dust, which may be inhaled by the patient through the mouth-piece *M*.

IMPROVEMENT IN BURETTE FLOATS.

A. GAWALOWSKI has made an important improvement in the so-called Erdmann's float which is used to facilitate reading off the marks on burettes.

[For the sake of those of our readers who are not familiar with the contrivance, we will briefly explain. In trying to ascertain the exact height at which a liquid stands in a narrow tube, such as a burette, an inexperienced person is sometimes puzzled, since the surface of the liquid forms a curve, caused by the capillary attraction of the glass, the liquid being in fact raised higher at the edge than it is at the centre. Hence, on looking vertically through the level of the liquid, a dark, semilunar line appears, which is called the *meniscus*. It is customary to regard the bottom part of this dark curve as the point from or to which the marks are read off on the burette. Erdmann proposed to obviate all difficulty by floating in the upper layer of the liquid a small glass-cylinder which should sink just far enough below the surface to clearly expose a circular mark made

upon its outside. It is from this mark and the corresponding marks on the scale of the burette that the quantity of liquid contained in or withdrawn from it is read off.]

Gawalowski now proposes to insert in the float a black strip of paper, or to paint a black ring in it, instead of merely etching or scratching a mark on the outside. A firm in Germany furnishes these floats with a black glass-cylinder fused inside.—*Chem. Centralbl.*

A still further improvement is proposed by A. Prinzl, who recommends to engrave upon the float a nonius or subdivided scale, so as to be able sharply to read off even small fractions of cubic centimeters. In this case, it will be possible often to use the more concentrated volumetric solutions, instead of highly dilute ones.—*Neueste Erfind. und Erfahr.*]

Commercial Varieties of Aloes.

A WRITER in the March number of the *Chemist and Druggist* writes:

There are three kinds of aloes known to commerce, viz., the East Indian, West Indian, and Cape; and these may be subdivided into seven distinct kinds, viz., the East Indian, Socotrine and Hepatic; Zanzibar Hepatic; West Indian, Barbadoes and Curaçao; Cape, and Natal.

The greater portion of this drug is consigned direct to London, and thence distributed to all parts of the globe.

America obtains a few West Indian and Cape direct, but draws her supplies of East Indian and Zanzibar from London. The continental requirements, with the exception of West Indian, are also obtained through the London market. Each country has its own idea as to the merits of the different sorts. Thus, the United Kingdom consumes East Indian, the finer sorts of West Indian, and but few Cape; whereas the Continent monopolizes at least three-fifths of the supply of Cape, and only a small proportion of the finer descriptions. The United States, whilst taking a fair quantity of Cape, are also large buyers of fine East Indian and Zanzibar.

I found it impossible to get at the exact quantity imported into London, as I was informed the records are returned as so many packages, but my informant kindly gave me an estimate which, I was assured, was not far wrong.

Last year about 4,500 packages of all kinds were imported, which was equal to about 350 tons, being about 25 per cent more than ten years previously.

The following particulars relate to the description, packages, etc.:

East Indian (*Socotrine*) are brought over in old tin-lined spirit-cases, containing about 70 to 80 lbs. each, the substance being about similar to putty, and when of good quality are of a light-brownish color, with a fine aromatic flavor, and generally realize the highest price.

East Indian (*Hepatic*), usually imported in kegs of 100 to 150 lbs. each, are much paler than the former kind, and almost liquid, being worth from 5 to 15 per cent less than the former.

Zanzibar (*Hepatic*). — These come over in a most curious and original way —viz., in monkey-skins; and I was gratified by seeing several cases of these fine aloes also packed in saucers and plates of native make, and in tin plates, bowls, and baking dishes of the cheapest Birmingham manufacture, which, I was told, was quite an exception, and may have been caused by the present troubles in the district from whence they came. The usual package —viz., the monkey-skin—when filled with aloes, is sent from the interior of Northern Central Africa down to the coast, and there packed into second-hand Manchester cases of various sizes.

The monkey-skins vary in size considerably. Amongst a very fine parcel I noticed a skin which could not have contained more than 2 lbs. of aloes, in fact, its contents were by far less valuable than the little animal would have been, had it been sent alive to this country; whilst other skins contained some 30 to 40 lbs., or even more. It was suggested to me by a gentleman I met at the warehouse, and who was showing me these skins, that it was a pity that the natives could not find the means of making boxes; but in a country where the nail is yet unknown and the art of joinery a thing of the future, they no doubt do their best to supply the deficiency.

It has since been my pleasure to meet a gentleman who was for some time in Zanzibar, and the reason he gave for the natives using these skins was that monkeys are very plentiful, easily killed, and of such varying sizes as to suit both large and small collectors of the juice of this important plant. After all, the natives only imitate the Spaniards of a no distant date, who stored their wines in pig-skins after exactly the same fashion.

This description of aloes most resembles the socotrine; the color, however, is paler, and the flavor, if anything, finer. This kind is practicably the only sort adulterated, if I may so use the term, as some of the skins are often filled with leaves, stones, dirt, and many other substances quite foreign to the aloe plant.

Cape are packed in large heavy cases, generally lined with sheepskins (which, no doubt, are plentiful in the colony), containing about 4 cwt. When of fine quality it is a hard bright, black (brownish tinted), glossy substance, with an offensive odor, and is generally known as the horse aloe. Its value (which, of course, varies according to supply) is about one-third that of the East Indian or Zanzibar. The production of this description is equal to the whole of the other sorts combined.

Cape (*Natal*).—The quantity of this kind collected is very limited, being only a few cases per annum. Like Cape, it possesses no flavor, but becomes a pale liver in color by keeping, and, in consequence of its color, realizes about half as much again as the ordinary Cape.

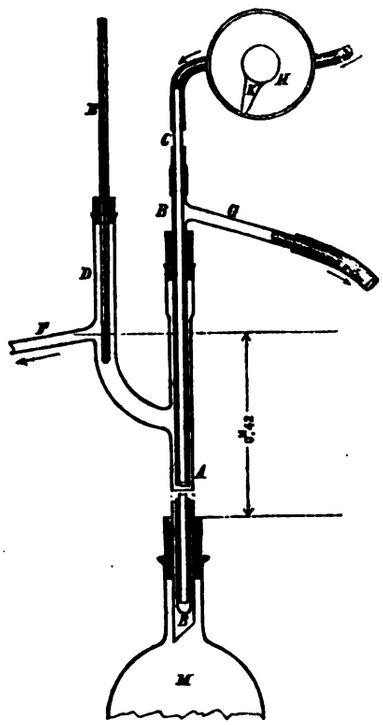
West Indian (*Barbadoes*).—This is the most important kind, at least so far as the English consumer is concerned. The quantity produced is large, say two-fifths of the whole, consisting both of fine and inferior qualities, the variation in values, I am told, being considerable, the fine bringing prices almost equivalent to East Indian, whilst common sometimes sell at less than Cape. They are packed in boxes of sixty to one hundred pounds, and in gourds of ten to fifty pounds each, resembling Cape in substance, but in color varying from a blackish brown to a pale mahogany, with an odor which is neither offensive nor aromatic, but quite peculiar to itself. There is also another distinguishing feature more noticeable in this aloe, viz., that it improves by keeping, and I was shown some boxes the contents of which were of a beautiful bright liver, and very valuable, but which, when imported some eighteen months previously, were quite a dark brown, and worth only about half their present value. I gathered that a regular trade is done by buying certain parcels when imported and storing them, but, as I am not a connoisseur of this commodity, I prefer to leave such selection to others more capable of judging, and wish them every success in their operations.

West Indian (*Curaçao*).—These are identical with Barbadoes in description and quality, but the latter have always the preference when sold. It has been suggested that the true Barbadoes is no longer cultivated, most of the plants having been destroyed, and what is now sold as Barbadoes is in reality the same plant cultivated in the sister isle of Curaçoa.

According to some authors, aloes are often found adulterated with various articles, chiefly resin, but from information I could gather such adulteration is unknown amongst the merchants who bring these goods to this country.

The natives of Africa (as I have before mentioned) in filling the monkey-skins are, like the cunning Chinese, willing to get the price of aloes for a large stone or other refuse conveniently placed in the centre of the skin, but, except this trick, I could not learn of any adulteration being practised.

In concluding my remarks, I would mention an aloe of the future which I have not yet been able to see, but of which I am promised a specimen at no distant date, viz., that procurable in Madagascar. The plant flourishes in abundance in this island, and the natives collect it in small quantities sufficient for their own consumption, as is noted by several European travellers who have written on the products of this island; but, as yet, it is not collected in sufficient quantity to form an article of export, although there is no reason to doubt that in a few years we may draw a considerable supply of this valuable medicine from this great semi-civilized island.



A NEW APPARATUS FOR FRACTIONAL DISTILLATION.

THE best forms of apparatus for fractional distillation, which is so important for the separation and identification of volatile liquids, have peculiar disadvantages, being either too frail or too difficult to clean or unsuited for small quantities of liquids. Our present article describes an improved apparatus devised by C. Winssinger, which is free from all these drawbacks.

A two-armed glass tube *A D F* is fastened perpendicularly, by means of a good cork, in the neck of a flask *M*. The arm *D* is provided with thermometer, and has a side branch at *F*, which connects with a Liebig's condenser. Into the main tube is inserted a second tube *B*, closed below, and this is held firmly, by means of a perforated cork, so that it is perpendicular and does not touch the inner walls of *A*. Inside of the tube *B* is another, smaller tube *C*, through which a small current of water or mercury is made to flow,

which acts as a condenser. Water is used for substances boiling below 100° C., and mercury for others. If the latter is used, it is made, when it passes out at *G*, to flow into water, from which it is from time to time separated and put back in the reservoir. A circular pinch-cock *H*, bearing upon its margin a series of empirical divisions, and which is regulated by moving the index *K*, controls the amount of water or mercury admitted to the tube *B*.

This very control, and the fine adjustment made possible through the index *K*, permits the proper condensation and almost total separation of fractions of liquids boiling at different temperatures. It will be found by experience, that any given temperature of the thermometer corresponds to one or more of the arbitrary divisions on the margin of the stop-cock, so that the corresponding figures may be after some time placed over the marks.

When using the apparatus, the liquid to be fractioned is put in the flask, the latter placed on a double wire-gauze over a Bunsen's burner (giving an even and regular flame), and a current of water or mercury let flow through the inside condenser *B*, if necessary. Gradually this current is increased or diminished, until some vapor becomes condensed and the first fraction of the liquid distils over. When this ceases, the current of water or mercury will have to be newly regulated as the temperature will rise, until the next fraction passes over, and so on. The portion passing over through *F* requires only a very small Liebig's condenser, and in many cases it needs no further condensation at all.

In order that the tube *B* may not be too suddenly chilled, the stop-cock *H* should be opened as soon as the liquid begins to boil, and a slow current of water or mercury at first be allowed through *B*. As soon as the vapors have reached the thermometer, the index *K* is slowly turned [that is, a stronger stream is admitted] until the temperature of the escaping vapor is as low as possible. When once fairly started, the apparatus may be left to itself, until the flow through *F* is almost stopped or greatly reduced, and the thermometer begins to fluctuate. The stop-cock is then slightly closed, in order to reduce condensation, and the second portion received; etc. The author's experimental figures show that the apparatus works with great accuracy.—*Ber. Deutsch. Chem. Ges.*, 1883, 2,640.

The True Source of Socotrine Aloes.

In the *Chemist and Druggist* for March, Mr. J. O. Braithwaite remarks (in a paper read before the Chemists' Assistants' Association) that a somewhat insignificant fruit rescued from a steam-pan in which socotrine aloes were being boiled had been recognized by Mr. Holmes as immature fruit of *Aloe Perryi*. Until recently the source of socotrine aloes was unknown; but Mr. Bayley Balfour has cleared up the matter and proved that the species yielding the commercial article is new to science. He has called it *A. Perryi*. It has thick, fleshy, *unspotted lanceolate* leaves which spring directly from the level of the earth. *Aloe socotrina* has narrow, rounded, *ensiform* leaves, *slightly spotted*.

Tellurium in Bismuth.

Mr. J. O. Braithwaite (*Chem. and Druggist*) lately exhibited to the Chemists' Assistants' Association samples of subnitrate of bismuth containing about 0.076 per cent, and subcarbonate containing about 0.05 per cent of tellurium and remarked:

"As complaints with bismuth are not infrequent, it may be useful to recapitulate the method by which this unpleasant impurity may be detected. A fair quantity (I use fifty grammes to approximately estimate the tellurium present) is dissolved in excess of hydrochloric acid, and, if the salt is the subnitrate, heat until all the nitric acid is driven off, restoring the hydrochloric acid which evaporates. To this acid liquid add an equal volume or more of a saturated solution of sulphite of sodium, and allow it to stand for at least twenty-four hours. If tellurium is present it will slowly be reduced, appearing first as a reddish cloud, and finally as a black precipitate. This precipitate may be collected on a tared filter, dried at a low temperature, and weighed. The tests for this element are that it sublimes, giving a reddish sublimate; it burns with a blue flame, evolving a most peculiar odor. Fused with an alkali it gives a reddish brown compound, which evolves a fetid and unmistakable odor with hydrochloric acid. Three milligrammes of this precipitate gave a markedly unpleasant onion-like taste in the mouth for some hours after taking the dose.

"Zinc is the only metal which is precipitated by nascent SO_2 under similar circumstances, so that its absence from the sample must be insured before applying the above test."

The Cause of the Bismuth Breath.

Mr. William Reisert, Ph.G., has contributed some interesting data to our present knowledge on the cause of the so-called bismuth breath, which has been quite correctly ascribed to the presence of certain impurities, notably tellurium.

The experiments were conducted with bismuth sesquioxide, freed from all impurities. The absence of arsenic and tellurium was shown by chemical tests, and that of the latter, moreover, by the absence of the peculiar garlic-like odor after taking the bismuth (see below).

The author found that the taking of arsenious acid internally did not communicate any odor to the breath.

Tellurium, on the other hand, was found to be undoubtedly the offending agent. The author took three doses of 0.005 gm. (1/12 grain) on one day, in intervals of three hours. In fifteen minutes after the first dose, the breath had a strong, garlic-like odor, and, in an hour, a metallic taste was observed. An hour after the second dose, the urine and sweat had the garlic-like odor, which was also observed in the fæces, four days later. The metallic taste was observed for seventy-two hours, and the garlic-like odor in the urine for three hundred and eighty-two hours; in the sweat, for four hundred and fifty-two hours; in the fæces, for seventy-nine days; and in the breath it was still present, though very faintly, after *two hundred and thirty-seven days*.

The author also made experiments to determine the smallest quantity of tellurium oxide which would be required to produce the garlicky odor. It was found that after *one* dose of 5 cubic centimeters of a solution containing only 0.0000001 gm. of telluric oxide in *cc.*—that is, after *one* dose of 0.0000005 gm. (or 1/120000 grain) of telluric oxide—the garlic odor became perceptible in seventy-five minutes, and lasted about thirty hours. Smaller doses of the same solution produced no noticeable traces of the odor.

It appears, therefore, that the physiological test for the presence of tellurium is far more delicate than any chemical one so far known. Hence, the failures to detect tellurium by chemical reagents in samples of bismuth producing bad breath no doubt induced various experimenters to ascribe the odor to some other impurity.—Abstract from *Am. Journ. Ph.*, April, 1884.

Emulsion of Paraldehyde.

The best method of giving paraldehyde is in form of emulsion. A sufficient quantity of powdered acacia is made into thick mucilage with water and a little paraldehyde added. The mixture is stirred until it has become perfectly homogeneous, after which another small quantity of water and of paraldehyde are added. This alternate addition of water and paraldehyde is continued, until as much of the latter has been added as the amount of acacia originally taken. If the last addition of paraldehyde has not disturbed the homogeneity of the emulsion, enough water is added to produce 100 parts of product for every 10 parts of acacia or of paraldehyde taken. To the 100 parts thus produced, 20 parts of syrup of almond are added. The dose of this emulsion is one fluidounce, to be repeated, if necessary, after half an hour.

A SIMPLE COOLER.

The most simple and easily managed condenser which we have seen described is that of Dr. John Walter, of Basle.

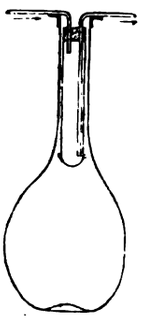


Fig. 1.

It consists of a thin glass tube, closed at one end, into which either one or more smaller glass tubes are inserted by means of a perforated cork or with rubber connection. The glass tube may be longer or shorter, according to the length of the flask or retort into the neck of which it is to be inserted. If merely hung into a flask, as shown in Fig. 1, it will usually accomplish its purpose just as well as if an upright condenser were connected with it airtight. Of course, proper precaution must be taken to prevent the ignition of volatile vapors from the burner below the flask. To prevent actual contact between the cold condenser while the cold water circulates through it and the hot neck of the flask, a few drops of glass are melted upon it near the end (see Figs. 1 and 2). Fig. 2 is another form of the condenser, suited for long-necked flasks, or adapted for the necks of retorts. In the case of the latter, the contrivance is only suitable if the liquid is not too volatile to be caught in open capsules (see Fig. 3).—*Dingl. Polyt. Journ.*, vol. 251, 369.

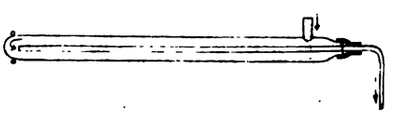


Fig. 2.

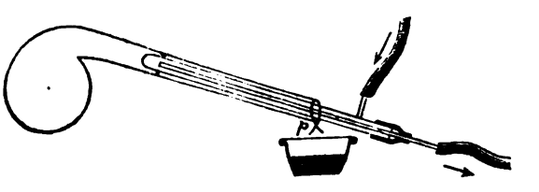


Fig. 3.

Burn Ointment.

After the application of bicarbonate of sodium to relieve the pain, Dr. Binkerd, of Delaware, recommends the use of the following ointment:

White Wax (pure)	℥ i.
Rectified Linseed Oil	℥ iij.
Tannic Acid	℥ i.
Subnitrate of Bismuth,	gr. xx.

Melt the wax in a clean tin or porcelain vessel, add the oil, and heat to near boiling, remove from the fire, and add the tannin in fine powder, and then the subnitrate of bismuth. Stir until cold.

Test for Lime and Sulphuric Acid in Citric and Tartaric Acids.

WHILE preparing the articles "Acidum Citricum" and "Acidum Tartaricum" for the second edition of the Pharm. Germ., Robert Otto made some observations which he believes to be new, relating to the test for lime and sulphuric acid in the above-mentioned two acids, in absence as well as in presence of ammonium salts. He says:

In order to determine whether, and eventually how far, the presence of ammonium salts affected the tests for lime in citric or tartaric acids, equally strong solutions of the two latter were prepared, mixed with equal quantities of oxalate of ammonium, and with different quantities of solution of sulphate of calcium. The following facts were then observed.

1. *Citric Acid.* 1 Gm. dissolved in 10 Gms. of water, and mixed with 1 C.c. of solution of oxalate of ammonium (1 in 20). Three portions:

After addition of

a. 1 C.c. of sol. sulphate calcium; remained clear for a short time.
b. 2 C.c. of sol. sulphate calcium: do.
c. 5 C.c. of sol. sulphate calcium: distinctly cloudy within same time.

I. *a. Citric Acid.* 1 Gm. dissolved in 10 Gms. of water, the solution approximately neutralized with watar of ammonia (sp. gr. 0.960), then mixed with 1 C.c. of solution of oxalate of ammonium (1 in 20). Three portions.

After addition of

a. 5 C.c. of sol. sulphate calcium: perfectly clear yet, after 15 minutes.
b. 10 C.c. of do. : do.
c. 20 C.c. of do. : do.

II. *Tartaric Acid.* 1 Gm. dissolved in 10 Gms. of water, and mixed with 1 C.c. of solution of oxalate of ammonium (1 in 20). Four portions:

After addition of

a. 1 C.c. of sol. sulph. calcium: perfectly clear, after 15 minutes.
b. 5 C.c. of do. : do., after 5 minutes.
c. 8 C.c. of do. : perfectly clear, after 5 minutes.
d. 10 C.c. of do. : faintly cloudy, after 5 minutes.

II. *a. Tartaric Acid.* 1 Gm. dissolved in 10 Gms. of water, the solution approximately neutralized with water of ammonia (sp. gr. 0.960), then mixed with 1 C.c. of solution of oxalate of ammonium (1 in 20). Three portions.

After addition of

a. 4 C.c. of sol. sulphate calcium: perfectly clear, after 5 minutes.
8 C.c. of do. : distinctly turbid, after 5 minutes.
10 C.c. of do. : cloudy-turbid, after 5 minutes.

These experiments show that the detection of calcium by oxalic acid is rendered difficult in presence of ammonium salts, while, on the other hand, these salts slightly facilitate the detection of calcium in tartaric acid.

Regarding the detection of *sulphuric acid* in citric and tartaric acids, by means of nitrate of barium, my experiments have shown that this is accomplished with greater precision in acid solution than in one approximately neutralized with ammonia.

I. *Citric Acid.* 1 part dissolved in 10 parts of water. 12 C.c. of the solution mixed with 1 C.c. of solution of nitrate of barium (1 in 20).

Samples.	In acid solution.	Approximately neutralized with ammonia.
a.	Faintly opalescent.....	Remains clear.
b.	Distinctly turbid.....	do.
c.	Between *a* and *b*.....	do.

During equal period of time.

II. *Tartaric Acid.* 1 part dissolved in 10 parts of water.

5 C.c. of the acid solution, mixed with 1 C.c. of $\frac{1}{10}$ normal sulphuric acid, on addition of 1 C.c. of sol. of nitrate of barium yielded *at once* a strong turbidity.

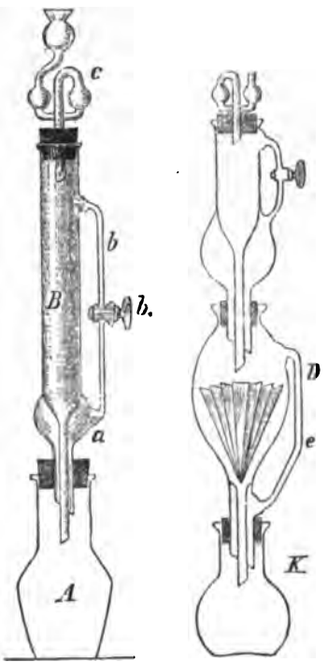
5 C.c. of the solution approximately neutralized with water of ammonia (0.960), even when mixed with 10 C.c. of $\frac{1}{10}$ normal sulphuric acid, and 1 C.c. of sol. of nitrate of barium, *showed no turbidity within six hours.* —*Arch. d. Pharm.*, 1833, Dec.

IMPROVED FORMS OF EXTRACTION APPARATUS.

A. GAWALOWSKI, having had an opportunity of comparing the different forms of extraction apparatus hitherto recommended, finally decided in favor of that devised by Ph. Wagner.

But even here the author found it possible to apply an improvement, the utility of which will be seen further on. The principal addition is a small stopcock *b*, in the lateral tube *b*. The lower part of the cylinder *B*, which contains the substance to be extracted is enveloped by a larger bulb *a*, so that the hot ether vapor may keep it constantly hot. Finally, in place of attaching to the apparatus an upright condenser, he attaches to it merely a Welter's safety-tube *c*, which serves both as a guard against the escape of vapors and as a funnel for adding more menstruum.

The use of the faucet *b* will be understood by imagining the apparatus in operation. Cylinder *B* contains the



substance to be extracted, in fine powder, placed on a pellet of pure cotton which is put in the neck. The receiver *A* is charged with a sufficient amount of volatile liquid (ether, etc.), all the parts connected together, and the flask *A* warmed on a water-bath —the faucet being open. After the vapor has traversed the apparatus long enough to have exhausted all or most of the soluble matters in the substance, the apparatus is removed from the water-bath and the faucet closed. As the temperature falls, a partial vacuum will be produced in the receiver *A*, and this will cause the liquid still retained by the substance in *B* to be almost completely sucked down into *A*. This may be repeated once or twice, and will help to accomplish the exhaustion much more rapidly than is possible in the ordinary kinds of apparatus.

When substances are to be extracted, the solution of which would not become quite clear if filtered merely through cotton, the author uses a modification of the above apparatus, shown in the second illustration. Instead of connecting the exhauster directly with the receiver, a modified Drechsel's funnel *D* is interposed, in which a plaited filter is spread out through which the solution is made to filter, and which is gradually washed by the subsequent portions of the menstruum as they fall into it from the extractor above.—*Zeitsch. f. Anal. Chem.*, 1883, 528.

On Ethylate of Iron (Ferric Ethylate.)

ACCORDING to Ed. Grimaux, if one molecule of ferric chloride, dissolved in absolute alcohol, be added to six molecules of ethylate of sodium, an immediate precipitate of chloride of sodium is produced and a deep reddish-brown limpid solution, which contains no more chlorine. All the iron is in solution in the alcohol as ferric ethylate.

[*Note by Ed. A. D.*—Ethylate of sodium is prepared by dissolving metallic sodium in absolute alcohol. Theoretically, it requires 23 parts of sodium to combine with 46 parts of absolute alcohol to from 68 parts of ethylate of sodium and 1 part of hydrogen which escapes. The quantity of absolute alcohol is, therefore, exactly twice that of the sodium. Ethylate of sodium has the composition $C_2H_5.O.Na$: and ethylate of iron (ferric ethylate) would be represented by the formula: $(C_2H_5)_6.O_6.Fe_2$.]

The above solution, prepared with 3.25 Gm. of ferric chloride dissolved in 25 C.c. of absolute alcohol, and 1.40 Gm. [really 1.38, but the slight excess insures the total decomposition of the iron salt] of metallic sodium dissolved in the same weight [should be, at least twice its weight] of absolute alcohol, may be subjected to distillation in the water-bath, without being altered.* There finally will remain a black, pasty mass, soluble in absolute alcohol, benzin, chloroform, ether, petroleum, and methylic alcohol. But, if this residue be heated in a vacuum, so as to remove the last traces of the solvent, a brown powder composed of ferric hydrate separates: the small quantity of water which the alcohol still retained, or which it has absorbed during the manipulations, reacts upon the ferric ethylate and decomposes it almost completely. By taking the precaution to filter in *dry* air, decomposition is avoided. The product yields only 18.5 per cent of carbon, on analysis.

The alcoholic solution of ferric ethylate is not precipitated by a current of dry ammonia; with dry carbonic acid, it immediately yields an ochre-brown precipitate. Dry hydrosulphuric acid produces ferrous sulphide. Ferrocyanide of potassium acts upon it just like water, and throws down ferric hydrate.

The action of water varies according to the proportions employed. The alcoholic solution, exposed to ordinary air, rapidly absorbs moisture, and yields a thick jelly of ferric hydrate; and the addition of a small amount of water immediately produces the same result. If the alcoholic solution of ferric ethylate is poured into an excess of water, a limpid liquid is obtained which presents the characteristics of the colloidal ferric hydrate described by Graham. This liquid coagulates spontaneously, after a longer or shorter interval, or rapidly, if heated. It is also precipitated by many other substances, such as carbonic, sulphuric, and tartaric acid; nitrate, chloride, bromide, or ferrocyanide of potassium, chloride of sodium or barium, baryta water, carbonate of sodium, and even common river water.

No change is produced by the addition of acetic, nitric, or hydrochloric acid, or of ammonia. Hydrosulphuric acid produces a black precipitate.—*L'Union Pharm.*, 1884, 63.

* This should be understood so that the *heating* does not alter the preparation. We do *not* understand it as if the solution could be distilled. An *iron-ethyl* ($C_2H_5)_3Fe$, is theoretically possible, and would be completely volatile; but it has never yet been prepared. But an iron derivative of ethylic alcohol is *not* volatile.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 5. WHOLE No. 119.

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

MAY, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00

SINGLE COPIES, - - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

The Pharmacy Law of New York City.

ACCORDING to Treadwell Cleveland, Esq., of New York, the pharmacy law formerly applying to New York City has been practically eviscerated by the adoption of the Penal Code of 1881, which, in Sec. 405 provides that:

"No person employed in a drug store or apothecary shop shall prepare a medical prescription unless he has served two years' apprenticeship in such a store or shop, or is a graduate of a medical college, or college of pharmacy, except under the direct supervision of some person possessing one of these qualifications; nor shall any proprietor, or any other person in charge of such store or shop, permit any person not possessing such qualifications to prepare a medical prescription in his store or shop, except under such supervision. A person violating any provisions of this section is guilty of a misdemeanor, punishable by a fine not exceeding one hundred dollars, or by imprisonment not exceeding six months, and in case of death ensuing from any such violation, the person offending is guilty of a felony, punishable by a fine not less than one thousand dollars, nor more than five thousand dollars, or by imprisonment not less than two years, nor more than four years, or by both such fine and imprisonment."

Further on, the Code, in Sec. 726, declares that "all acts or parts of acts which are inconsistent with the provisions of this act are repealed, so far as they impose any punishment for crime, except as herein provided."

This opinion, though apparently based on logical grounds, is, however, not by any means convincing to us. It is by no means settled that all the penalties prescribed by local laws, laws affecting special corporations or societies, are cut off by the Penal Code. It is rather surprising to be told that hundreds of laws can be made nugatory and repealed in *effect*—though not repealed by name—by means of making inoperative any clauses contained therein which provide for punishing infractions of these laws. To cut out these clauses practically amounts to the same thing as to repeal the laws which contain them. Could this have been the intention of the Legislature? There are, no doubt, numerous other local laws, some of equal importance with the pharmacy laws for New York and Kings Counties, which would become inoperative, to the great damage and, perhaps, danger of the public, were the opinion of Mr. Cleveland to be correct. It seems to us that it is proper to regard the opinion of any lawyer—no matter how high his standing—as premature and worse than useless unless it be adopted by the judge on the Bench, and finally the Court of Last Resort, after a thorough argument on both sides of the question. We acknowledge that there is plenty of chance for a strong argument on *both* sides, but cannot help regretting if a spirit of opposition against the established and, in our opinion, unrepealed laws should become developed among those who have not yet complied with their provisions, merely by reason of the publication of a single lawyer's opinion.

More recently it is reported that the bill before the Legislature to enact a a State pharmacy law, has been passed, and that it prohibits not only the dispensing of prescriptions, but also the sale of medicines, in towns above a certain size, by others than regularly licensed pharmacists and physicians. This may avoid the enactment of another special law to apply to New York City.

Pharmacy in Massachusetts.

THE Old Bay State does not often take a step backward, and the result of the recent contest in its Legislature over the enforcement of good laws to prevent food and drug adulteration may well be the subject of congratulation.

During the debates, both in committee and before the House, on the bill proposing to repeal the law preventing Adulteration of Food and Drugs, it became evident that an interested clique had obtained the ear of a majority of the Committee, and had succeeded in convincing them: 1, that the United States Pharmacopœia was a sort of boiled-down extract or a skeleton-like index of the United States Dispensatory; 2, that the United States Dispensatory was the standard followed by pharmacists in general for preparing medicines; 3, that the Pharmacopœia was based on the Dispensatory, and was prepared by a sort of non-descript, self-constituted body, who did this merely to make money; 4, that the sooner any law recognizing the Pharmacopœia as a standard was repealed, the better it would be for the country; 5, that it was unfair to establish a limit for the purity of drugs, inasmuch as it could not make much difference if a drug contained, say forty-four parts of impurities, when the law had set the limit at forty-six parts, etc., etc., etc.

The report of the *majority* of the Committee was in favor of a repeal of the law, and plainly showed the kind of mother's milk the innocent babes had been fed on. To the credit of the House, however, let it be said that the well-laid scheme was upset. After a thorough argument in open session, during which various members distinguished themselves by an intelligent exposition of the true facts of the case, and gave a lucid and impartial statement of all the concomitant circumstances, the House, by a large majority, adopted the *Minority* Report of the Committee, objecting against the repeal of the law.

It is perhaps true that the law might have been carried out with a little more tact and a lesser degree of harshness, at least in the beginning. But whatever errors may have been committed in this direction formerly, it is pretty certain that the law will hereafter be enforced without bearing too hard upon those who infringe it innocently and unintentionally.

Menthol from American Oil of Peppermint.

AMERICAN oil of peppermint, derived from *Mentha piperita* L., has heretofore not yielded any menthol or peppermint-camphor except by accident. Occasionally a can or bottle containing the oil, when exposed to a low temperature, has been known to deposit the substance. We are informed by representatives of one of the largest manufacturing firms of essential oils that they have noticed this phenomenon at rare intervals, and that no assignable cause could be discovered why in one package the camphor separated, and in another of the same lot it refused to do so.

This peppermint-camphor is, however, afforded in large quantity by Chinese or Japanese oil of peppermint, obtained from *Mentha arvensis* L. Menthol may easily be obtained from this oil by cooling, or better still, by previously removing a portion, or as much as possible, of the lighter-boiling terpine contained in it, by distillation with water. This same process has heretofore not succeeded in effecting the separation of menthol from the American oil.

Mr. Albert M. Todd, the large grower of peppermint and distiller of peppermint oil, at Nottawa, St. Joseph's County, Michigan, has at last succeeded in overcoming the difficulty, and has found a method by which he obtains the menthol of the American oil in a crystalline condition. The crystals are long, brilliantly white, soft, flexible, silky needles of a very pure odor, and will, no doubt, find a ready market.

WE desire to call special attention to the article on the "Separation of Mercuric from Mercurous Iodide," by Mr. Maclagan, on p. 82 of this number. According to the author's observations, it seems impossible to treat mercurous iodide (protiodide of mercury) with any solvent capable of removing traces of mercuric (red) iodide without decomposing some of the former salt, and actually *producing* a corresponding amount of the red iodide.

The results of the author already foreshadow the probability that the true color of absolutely pure mercurous iodide (which has so far remained in dispute) may finally be decided, and that additional light will be thrown on the cause of variation of activity or poisonousness of the different lots of mercurous iodide in the market.

Taste in the Practice of Pharmacy.

THE following hints are taken from a paper by Mr. Peter Boa, published in the *Chemist and Druggist* for March.

The exercise of taste in the business of a pharmacist is concerned with the quality and kind of articles employed to contain or convey medicines, and includes such things as twine, bottles, sealing-wax, paper, and labels. Of the quality of these customers are able to judge. They know superior twine from inferior, and they can see at once whether it matches the capping-paper. They can recognize and appreciate a symmetrical bottle, and condemn an ugly one. If the color of the wax be bad it is unsightly, inferior paper is an abhorrence to any one, and a badly written or printed label is easily recognized. Of the contents of a bottle of medicine the patient has no means of forming an opinion, but he can very fairly estimate the style of wrapping it. If the articles employed for this purpose be of inferior quality, suspicion is excited; if faultless, confidence is created, and confidence always promotes business.

In the choice of *bottles* we cannot go far astray. If we deal with good makers, and pay a reasonable price, we are pretty sure to get presentable bottles. Shape is very much a matter of opinion. Oval bottles are pretty, but flats are more easily wrapped neatly, and packed better, and are, I think, less liable to be smashed by pressure, and they look very well if symmetrically made. If the angles of flats be sharply defined they rather add to the beauty of the bottles. Ovals, moreover, show defects more readily. In phials there is not much room for selection. Those of medium height are preferable, I think, both in point of utility and appearance, to the short or long varieties. Actinic phials are very pretty, and are useful for certain purposes. They are open to the objection, however, that one cannot see through them with the same facility that one can see through uncolored glass. When dispensing two different kinds of drops or small mixtures of the same size for the same patient, it is convenient by way of distinction to put up one into each kind of phial, and the variety is pleasing to the eye. The ordinary poison-bottles have no redeeming feature in their character, except their shape. The blue color is not nice, and it is open to the serious objection that one cannot see through it. The color and shape, moreover, conceal cracks and pin-holes in the corners so readily that the bottles are fertile in causing annoyance by being filled when cracked and leaking after the medicine has been sent out.

The *twine* used should be of good color if colored, if white thoroughly bleached. In color I prefer pink or red. Yellows and blues are, generally speaking, out of harmony with all the other things. Pink and white are suitable for all purposes, the pink for parcels and capping, the white to tie split skin capping. It is scarcely necessary to say that it should be evenly spun throughout and well twisted. There is something as attractive about the appearance of a well-made brightly-colored twine as there is repulsive about a twine that is thick and thin alternately and feebly colored. The twine is of great importance. A common twine is an offence against all the rules of taste that relate to our business. We do not deal in articles of such a nature that a twine of this description is permissible.

Sealing-wax does not require much to be said regarding it. In use it ought to be sparingly applied, and not splashed on in great lumps. When used for external decoration, such as sealing the top of a cork, care should be taken to preserve it as clean as possible, so that its color loses none of its brightness. What the color is need not be of much concern. Red is the conventional tint, and I have no fault to find with it.

Labels afford more scope for the exercise of taste than any other accessory to our business. There is a variety in them. Some are printed ready for use, others written as occasion arises. There is no excuse for any one having ugly stock labels, because the label printers, if left to their own discretion, usually produce very good specimens. However, we do see samples of badly-arranged labels even yet. The fault generally lies in want of variety of type, or printing the matter too closely and continuously, as if it were part of the column of a newspaper. Two or three kinds of type on a label give it a character which it wants if all of one kind. If it contain simply the name of the article and the directions, there is, of course, opportunity for only two kinds, but, as a rule, labels of this description have the name of the article, its medicinal properties, and the dose. Such labels should always be set up in three types, or, if two parts be of the same kind, one should be a size larger than the other. Variation in size or kind renders each one more distinct than if they were all the same, and, besides, the effect is more pleasing, partly because of the distinctness, and partly owing to the pleasurable sensation that naturally arises when anything looked at conveys the impression of design which has produced a successful result. Labels intended for bottles should have the length up and down the bottle. The effect to the eye is more pleasing, apart from the fact that a label of this kind enables its contents to be kept all before the eye, which is preferable to having to turn the bottle to one side at the end of each line. More opportunity is afforded also for varying the type, and the variety is more effective. With regard to the matter on a label, I can scarcely say anything, because so much depends on the medicine of which it is to be descriptive. I may, however, I think, safely say that the wording of a label should be concise and to the point, having each idea following the other in logical sequence. Any digression is to be avoided, as it is not desirable to produce something which is a compromise between a label and a handbill, but which is unsatisfactory as either. Such a label would be a mistake from a business point of view, as well as an offence against good taste. For ordinary purposes it is not good taste to indulge in fulsome laudation of any preparation on the label thereof. It is quite enough to state the complaint for which it is used, and call it by its name, without adding that it is "far-famed" or "world-renowned." If it be the intention to push the article as a quack medicine, then, of course, the greater the number of prefixed laudatory adjectives the better. Modesty on the part of the promoter of a quack remedy does not give good results.

Some establishments, for the sake of uniformity, as they say, adopt a certain style of dispensing-blanks in various sizes, and have all their stock labels printed on one or other of these blanks. Such labels are never pleasing to the eye. They have a patched-up look about them. The printed part in the centre generally looks as though it had been pasted on. Such labels certainly reduce the necessity for any intelligence on the part of the printers, and insure the result that all the labels in the establishment are uniform in ugliness.

White paper and black ink are all that is required. Colored ink is never satisfactory in connection with labels for medicinal preparations. Some chemists have their labels printed in blue. When well executed they are, perhaps, free from any serious objection. Any more brilliant color, however, would be sure to give offence.

The production of good blank labels is a more difficult undertaking than getting up printed labels. It is not enough to get the name and address printed, with a blank space attached. Some have the blank space above and the name and address below, others have this arrangement reversed, while the majority, I believe, have the blank space between the name and the address. In this my sympathies are with the majority. Of the two former I prefer the one with the name and address above. It may appear top-heavy to a certain extent, but to the eye it never presents the aspect of utter blankness which belongs to the space at the top. The nakedness of the upper portion seems to be increased, moreover, in proportion to the amount of printing below. One line of printing at the bottom does not expose the blankness so much as two or three lines. When we reverse the arrangement the effect is the opposite. If the printing be at the top it should be in two or more lines; if at the bottom, in one, if possible. Similarly, when the space is in the middle, the larger portion of the printing should be on the upper part. On round labels the name and address should be so arranged into two portions that each occupies exactly half the circle. The printed matter on blank labels—particularly those used in dispensing—should be as simple as possible. The name, designation, and address are quite sufficient to meet all requirements. The addition of "chemist by examination," "late manager to so-and-so," is in very bad taste. There is not any objection to such a parenthetic addition to circulars, but I entertain a decided conviction that a dispensing-label is not an appropriate place for an advertisement. Some pharmacists adorn their labels with a coat-of-arms, a mortar, or other device. While I would not entirely condemn embellishments of this kind when judiciously employed, I would say, without any hesitation, that we can never err in having our labels without them.

When we have obtained a satisfactory dispensing-label, we must be careful to have whatever directions it contains neatly written. If it be clumsily written the beauty of the label is lost. The labor expended in perfecting the label is thrown away. And, again, the perfection of the label only serves to more clearly indicate the demerits of the writing. Those who are not good writers need not despair, and those who are expert penmen need not take to themselves too much credit until they hear all I have to say on this point. The best writers do not always execute the neatest labels. Sometimes an inferior writer produces a very neat label. So much of the effectiveness of a label depends upon the arrangement of the matter that, unless judgment be exercised in this respect, the most beautiful penmanship goes for very little, and greatly inferior caligraphy may make a very presentable appearance when the way in which it is adjusted is judiciously managed. With regard to the writing itself, it should be distinct, easily read, compact, and free from flourishes. If it be good it can afford to do without any superfluous embellishment, and if it be bad no amount of adornment will hide its defects. We cannot too carefully cultivate the art of penmanship. It is a great auxiliary to the successful prosecution of our business. I confess to having a preferential leaning to a good writer, although his scientific knowledge be somewhat shaky at some points.

In writing a label we must take care to balance the matter so that its parts may form a symmetrical arrangement,

All the lines must begin and terminate at the same distance from the margin. If we write "The Mixture" or "The Powders," we must take care that it is exactly in the centre. The appearance of a label is greatly marred by having having it nearer to one side than the other. We must also be cereful to manage the adjustment of the matter so that it may fill the label pretty well. To have a label with two lines of writing at the top and three left unoccupied at the bottom is to sacrifice its proportion. It is in this connection that a middling writer who has an eye for proportion in form may surpass a good writer in execution of a label. The free and easy writer too often trusts so much to the excellence of his work that he altogether neglects the just apportionment of its parts.

Having the label written, we must, before putting it on the bottle or box for which it is designed, see that its outer edge is nicely trimmed from all superfluous white paper. It is very unsightly to see a piece of white paper projecting from one corner, or to see a broad piece of white at one side, while the other is cropped to the margin. A very small margin of white beyond the border-line is rathar an improvement than otherwise, provided it be kept of the same breadth at each side. It may be said that customers do not observe such trifles. That may be, but that is not the point. If we let a label leave our hands knowing that it is not as it should be, we are untrue to ourselves; therefore we should never slur over even such a trifle.

Before putting a new label on a bottle the old one should be removed. It is a very slovenly proceeding to stick it over the old one. One day last week I had the labor of picking *five* labels off one bottle, and all had been affixed by the same chemist. They were piled one on top of the other. When more than one label requires to be put on a bottle, they should be so put on as to convey to the eye a due sense of balance in the adjustment. In the case of two, the larger one placed in the usual position, and the smaller at the bottom, is generally the most suitable arrangement. When three are used they should be placed at equal distances from one another.

There is not much to say regarding the labelling of boxes, except, perhaps, in the case of pill-boxes it may be said that the labels should, if possible, be the exact size of the box, and if they should happen to be smaller a piece of capping-paper or similar material should be used to cover the top of the box prior to affixing the label. It produces a much more agreeable effect than the appearance of a small label in the middle of a white unfinished surface.

Various as are the tastes displayed in the choice of labels, they are few compared to the diverse opinions which seem to prevail regarding stamps used for prescriptions. Suppose we get possession of a prescription that has been over England, Scotland, and Ireland, and perhaps part of the Continent, we may find on it the impressions of say a dozen different chemists' stamps, and of these no two will be alike. Some will cover perhaps, a sixth of the prescription. Some of these large stamps are excessively vulgar. They have no commendable feature except their size, which would render them admirably serviceable for stamping sacks were their proprietor a wool broker or potato merchant. To put such a stamp on a prescription is to take an unwarrantable liberty with another person's property. The prescription is handed to us to be dispensed, not to be disfigured with a circular advertisement in red ink, for large stamps are generally used with brilliant ink. If we stamp the prescriptions, we do it subject to the permission of the owner. I have had experience of a person who, when he wanted a prescription dispensed, handed it in with this request: "I want you to make up this for me, and be careful not to soil the prescription. You may put your number in the corner, but I will not have you disfigure my paper with your stamp." Our stamp, therefore, should be modest. A small neat embossing stamp is, I think, preferable to one used with ink. The use of a stamp with ink produces an impression that is at once observable on the white paper, and if it be not a nicely-arranged and symmetrical stamp it produces a disagreeable effect on the eye, whereas in the case of an embossed stamp the impression is quite distinct, and yet, though it be not put on exactly straight, it does not strike one so readily that there is anything wrong with it. There is something strong and genuine about the appearance of the clearly-defined characters of an embossed impression, while even the best of ink impressions have a kind of factitious stuck-on look about them. Some of the latter, I am ready to admit, when they are symmetrically arranged, of small or medium size, and carefully used, are very presentable.

Regarding *paper* I would merely say that it should be of good quality. Inferior varieties of white paper in particular should be avoided.

In our choice of *corks* we ought to exercise great care. Bad corks are fertile sources of annoyance. Unless the wood from which they are made be sound and flexible the results are sure to be vexatious. Nothing rouses the wrath of a patient so much as to have a cork snap off short on a level with the bottle at the first attempt to withdraw it. Even in so small a matter as the use of corks there is room for the exercise of taste. If we set three novices to cork a bottle each, and watch their preceedings, we may gain material for reflection. The result will not unlikely be that the first will select a cork much too small for the bottle, and drive it in till it becomes tight just at the varnishing-point, leaving a long unconfined point penetrating into the interior of the bottle; the second will choose a cork of too large a size, and get the point only inserted, leaving as much outside the bottle as the first had inside; the third will select a cork which will fit properly when about one-half is inside the neck of the bottle and the other out. All three probably arrive at their results without going through any process of reasoning. Their object is to secure the contents of the bottle, and this they attain in different ways. The reason that one of them accomplishes his object as it ought to be done is probably because his eye has a nicer perception of just proportion, and he adjusts the cork in the way he does because it pleases his eye.

Aseptol a Soluble Substitute for Carbolic and Salicylic Acids.

BY C. ANNEESSENS, OF ANTWERP.*

SINCE the introduction of carbolic and salicylic acids as antiseptic agents, the manufacture of these substances has been greatly improved, so that they are now furnished in a much purer state than formerly. Nevertheless, their limited solubility makes their application sometimes difficult, and, besides, they have always remained comparatively high in price, in spite of their large consumption. The temporary competition of thymol and chloride of zinc has not been strong enough to interfere much with their employment.

The antiputrid, antiseptic, and antifermentative properties of carbolic and salicylic acids are at present commonly recognized, except by a few who obstinately refuse to recognize clear distinction between antiseptics and disinfectants. Their employment has become general in all sanitary matters, and if it were not for their limited solubility, they would be employed in many more surgical emergencies than they are now.

This drawback, however, may now be considered as removed, since we have at our disposal the new substance *Aseptol* (ortho-oxyphenyl-sulphurous acid), which possesses all the chemical and antiseptic properties of carbolic and salicylic acids, while being *completely* and *abundantly* soluble in water.

Aseptol is a perfectly definite substance. Its molecular structure: $C_6H_4.HO(^1).SO_2HO(^2)$ is exactly parallel to that of salicylic acid: $C_6H_4.HO(^1).COOH(^2)$;* that is, it may be regarded as benzol, in which the hydrogens of the *ortho*-position (compare last number, page 77), viz., those attached to two immediately succeeding carbons, are replaced by hydroxyl and sulphurous acid (minus one hydrogen). The compound has the same characteristics and antiseptic powers, which are, however, augmented from one to three hundred times, at the ordinary temperature, by its ready solubility.

While carbolic acid is a weak acid, scarcely combining with bases, and not being able to saturate the ammoniacal bases which form part of ferments, *aseptol* acts with great energy, on account of its perfect saturating power and great solubility.

It is a viscid liquid, of a slightly red color, and a spec. grav. of about 1.450. Its odor recalls that of carbolic acid, but much less so when in solution. When fused with potassa, it furnishes pyrocatechin, resorcin, and hydroquinone.

It may be used, internally, in doses intermediary between those of carbolic and salicylic acids, without producing the irritating and toxic effects often following the latter. When dissolved in common water, even at the rate of one part of one thousand (or even more dilute), and used as a wash, irrigation, or spray, it forms an eligible substitute for both carbolic and salicylic acids, and will render great service in the hygienic management of hospitals, schools, public streets, and any other places where it is necessary to destroy morbid ferments in the air.

Note on Tincture of Hyoscyamus.

IN a paper by William Gilmour in the *Pharmaceutical Journal*, the writer says, in conclusion, that the spectroscope does *not* distinguish between a tincture made from an annual or biennial plant.

The milky turbidity on the addition of water is not a test to distinguish the one from the other; but it is a fairly good test as to the quality, so far as age, exposure, etc., of the biennial plant is concerned.

A proof-spirit tincture, although quickly changing so far as the chlorophyll matter is concerned, does not show this change, to any extent, to the naked eye, while the more important chemical changes, which ultimately affect the quality of the tincture therapeutically, are comparatively slow.

A rectified spirit tincture undergoes very rapid changes, which are very conspicuous to the naked eye, and which are almost certain to end in rapid chemical changes affecting the therapeutic value (if it possesses any) of the tincture.

Rectified spirit does not possess the same power of exhausting the henbane of its extractive matter as proof-spirit.

A rectified spirit tincture and a proof-spirit tincture are quite unlike in their appearance, so much so as practically to make them unrecognizable.

* From a reprint from the Journal de Pharm. d'Anvers, Feb., 1884, communicated by the author.

* The superior figures 1 and 2 here refer to the positions 1 and 2 (ortho-position) in the Benzol ring.

The Assay of Hydrogen Peroxide.

THE increasing commercial importance of hydrogen peroxide and the variability, in strength, of the commercial article, make it necessary to apply some reliable process of assay. Roscoe and Schorlemmer, in their Treatise on Chemistry (vol. I., p. 261) give the following reaction for the volumetric estimation of the compound by means of permanganate of potassium:

$$2KMnO_4 + H_2O_2 + 3H_2SO_4 = K_2SO_4 + 2MnSO_4 + 4H_2O + 3O_2$$

potass. permang. — hydrogen peroxide. — sulph. acid. — potass. sulphate. — manganese sulphate. — water. — oxygen.

Messrs. Carpenter and Nicholson, however, have recently shown that the above reaction is incorrect, and that it should be expressed, as Kingzett already gave it, thus:

$$2KMnO_4 + 5H_2O_2 + 3H_2SO_4 = K_2SO_4 + 2MnSO_4 + 8H_2O + 5O_2$$

Kingzett proposed to titrate the solution by means of standard hyposulphite of sodium, having previously added iodide of potassium from which the hydrogen peroxide liberates an equivalent quantity of iodine.

The authors find, however, that accurate results are obtainable by this method only with difficulty and under observance of certain precautions. The method depending on the measurement of the evolved oxygen is, likewise, difficult of execution and liable to inaccuracies. But the permanganate method is easy and always furnishes close results. Nevertheless, the authors have obtained fairly coincident results with all three methods on one and the same sample of hydrogen peroxide, and it was this very fact which enabled them to prove the correctness of Kingzett's reaction.

According to the equation last given (containing the $5H_2O_2$), each cubic centimeter of decinormal permanganate solution (that is, one corresponding exactly to decinormal oxalic acid solution), corresponds to 0.0017 gm. of peroxide of hydrogen, and evolves a total of 0.0016 gm. or 1.1188 C.c. of oxygen.

The assay is made as follows: 10 C.c. of the peroxide of hydrogen are mixed with 40 C.c. of slightly diluted sulphuric acid (1 of acid and 3 of water), and made up with water to 100 C.c. The decinormal solution of potassium permanganate is now run in until a faint pink tinge, permanent for a few minutes, becomes visible.

In Kingzett's process, the following reactions occur:

a. $2KI + H_2O_2 = 2KHO + I_2$

potass. iodide. — hydrogen peroxide. — potass. hydrate. — iodine.

b. $I_2 + 2Na_2S_2O_3 = 2NaI + Na_2S_4O_6$

iodine. — sodium hyposulphite. — sodium iodide. — sodium tetrathionate.

1 Cubic centimeter of standard hyposulphite is, therefore, equivalent to 0.0017 Gm. of H_2O_2, or, in other words, is exactly equivalent to 1 C.c. of the decinormal permanganate.

The authors also tried bichromate of potassium, in presence of sulphuric acid, as a volumetric reagent. In this case, *half* the volume of oxygen liberated is derived from the peroxide, perchromic acid being formed as an intermediary step, thus:

a. $K_2Cr_2O_7 + 3H_2O_2 + H_2SO_4 = K_2SO_4 + Cr_2O_8 + 4H_2O + O$

potass. bichromate. — hydrogen peroxide. — sulph. acid. — potass. sulphate. — perchromic acid. — water. — oxygen.

b. $Cr_2O_8 + 3H_2SO_4 = Cr_2(SO_4)_3 + 3H_2O + 2\frac{1}{2}O$

perchromic acid. — sulph. acid. — chromium sulphate. — water. — oxygen.

With reference to the term "volume-strength," it is noticeable that dealers have somewhat vague ideas as to its significance.

The total volume of gas liberated by the action of potassium permanganate from *one volume* of the peroxide of hydrogen [often also called "hydroxyl"] solution, is the most lucid and definite explanation which the authors have received. But, if this were the case, it would give to most samples tested by the authors nearly double the strength that they were stated to be. Hence this method of stating strength may be at once discarded, since it is not the ordinary commercial custom to understate values

Evidently the *volume of oxygen gas* available in one volume of the peroxide solution is the only proper meaning of the term.

The samples examined by the authors were obtained from firms of good repute, were sold as being of fair commercial quality [all of them contain traces of fixed substances, and usually traces of free acid], and nearly approximated to the strength stated.—After *The Analyst*, March 1884.

Filtration and Preservation of Decoctions and Infusions.

THE *Chemist and Druggist*, in an abstract from a paper read by Mr. J. A. Hislop, before the Hawick Pharmaceutical Association (Scotland), says: He constructs a filter out of two funnels, one a little larger than the other, about two feet of india-rubber tubing ⅝ of an inch in diameter, a sponge, ¼ yard of flannel, and the same of lint. To the lower end of the larger funnel, which is supported by the ring of a retort stand, is attached the india-rubber tubing, and to the other end of the tubing is fastened the small funnel inverted. Over the larger funnel is now tied a portion of the flannel cut to a suitable size and shape, which retains the larger pieces of solid matter of the infusion. In the small funnel is inserted a sponge, large enough to occupy the whole space, and the mouth is securely closed with a piece of lint. The infusion or decoction being now poured into the upper funnel passes rapidly down the tube, and the weight of the column is sufficient to force the liquid quickly through the sponge and the lint, which retain the smaller particles of matter, and allow only a bright and sparkling fluid to filter through.

The Refining of Shellac.

CRUDE shellac is refined in the following way: one and a half kilos of soda are dissolved in forty-five liters of water contained in a small boiler or kettle; 5 kilos of the crude shellac are added in small quantities at a time. This turbid solution has the characteristic odor of shellac and a violet-red color. The liquid is boiled for a few minutes, and, while hot, a wooden air-tight cover is connected on the vessel. When the vessel is quite cold, the cover is removed, and the thin cake of fat which is found on the surface is separated. The solution is filtered through linen, the clear filtrate slowly decomposed with dilute sulphuric acid, and the resulting shellac washed with water until no acid reaction remains. The washed resin is now pressed and melted in boiling water, when it can be shaped with the fingers. This shellac is placed in water containing glycerin, and when hard is dried. The refined shellac forms yellowish-white, glistening tufts or bars, which when dry, are yellowish-brown; it should entirely dissolve in alcohol.—E. L. ANDES, in *Scient. Amer.*

A new Test for Lead.

BY A. WYNTER BLYTH, M.R.C.S.

A SOLUTION of cochineal is prepared by boiling the ordinary commercial cochineal in water, filtering, and then adding sufficient strong alcohol to insure its preservation from mould. A few drops of this solution added to a colorless neutral or alkaline solution, containing dissolved lead, strikes a deep mauve blue to a red with a faint blue tinge according to the amount of lead present. The test will distinctly indicate a tenth of a grain of lead per gallon in ordinary drinking water, and by comparison with a solution free from lead, much smaller quantities are indicated.

In searching for traces of lead in water, it is convenient to take two porcelain dishes; into the one place 100 C.c. of the water to be examined, and into the other, a solution of carbonate of lime in carbonic acid water, known to be lead free, and approximately of the same hardness as the water to be examined, then add to each an equal bulk of the coloring matter in quantity sufficient to tinge the water distinctly; the colors may now be compared, the slightest blue tint will be either due to lead or copper, for copper in very dilute solutions gives a similar tint, but in solutions of 1 to 1000 or stronger, the hue is so different as to differentiate the two metals.

The method is within certain limits applicable for quantitative purposes on the usual colorimetric principles. As a qualitative test, it is superior to hydric sulphide and more convenient.

[During the discussion of the preceding paper, the following remarks were made: Dr. Stevenson inquired if varying the amount of alkalinity in the water, or the presence of considerable quantities of carbonates had any effect.

Mr. Blyth said that, of course, they altered the hue, but the blue was still very decided. He had tried all kinds of salts; but as it was a new test, he would be a bold man to say that it was really confined to these, although, as far as he knew, it was peculiar to lead and copper, with the limitations he had mentioned. The tests were confirmed by other reactions.]—*The Analyst*, March, 1884.

Salicylic Acid in Facial Neuralgia.

SALICYLIC acid is proposed by Prof. Nussbaum, of Munich, as a remedy for facial neuralgia. Three grains of the acid, mixed with about thirty grains of salicylate of sodium are given from four to six times during twenty-four hours. It is said by Radier (*Medical News*) that neuralgic pains may be relieved by painting the affected part repeatedly with the following solution: Chloral Hydrate and camphor, of each two drachms, Morphia Sulph., half a drachm, and Chloroform a drachm. A solution of a drachm of camphor in two drachms of chloroform or ether also proves useful.—*Can. Ph. J.*

Santalin.

THE *Zeitschrift f. Anal. Chem.* gives a process for extracting santalin from sandal wood by means of borax which consists in boiling the crushed wood with water to eliminate its tannin; heating the residue with a solution of borax and saturating it with lime until the coloring matter is entirely removed. The filtered liquid is then treated with sulphuric or hydrochloric acid until no further precipitate is obtained. This red, bulky precipitate is filtered out and dissolved in boiling alcohol and on cooling the santalin separates in the form of a red, crystalline powder.

Manufacture of Aluminium.

It is stated that Salinders is the only place in the world where aluminium is manufactured, about 2,400 kilos of metal being produced annually. The sodium used in the manufacture is obtained by igniting sodium carbonate with carbon in presence of a small quantity of lime, which is said to facilitate the distillation. The double chloride of aluminium and sodium is prepared by strongly heating a mixture of alumina, carbon, and sodium chloride in a current of chlorine. The resulting double chloride is then fused with the sodium in small reverberatory furnaces, cryolite being added as flux.

Much has recently been said in the newspapers with respect to an invention by which it is supposed that Webster of the Aluminium Crown Metal Work, Hollywood, has greatly cheapened aluminium. The preparation of one ton of aluminium is said to cost only 2,000 marks. The method consists in strongly heating bauxite with sodium carbonate, decomposing the sodium aluminate with carbonic anhydride, heating the deposited alumina with carbon in a current of chlorine, and fusing the resulting double chloride of aluminium and sodium with sodium and cryolite. This process is neither new nor is it possible to produce aluminium at a lower cost than at Salinders. Webster has also patented a method for preparing alumina for the manufacture of aluminium, which relates to the obtainment of anhydrous alumina from potash alum. The method is impracticable and costly.

Morris obtains aluminium by treating a mixture of alumina and carbon with carbonic anhydride. A solution of aluminium chloride is mixed with pulverized charcoal or lampblack, evaporated to a thick paste, cooled, and made into balls, which after drying are placed in iron tubes and heated. The last traces of chlorine are removed by passing steam through the tubes. The heat is then increased to dull redness and carbonic anhydride introduced. The carbon reduces the carbonic anhydride to oxide, and this is said to reduce the alumina to aluminium.—*Dingl. Pol. Jour.* and *Jour. Chem. Soc.*

Detection of Alohol in Essential Oils.

Theodore Salzer reviews the methods heretofore proposed for detecting alcohol in essential oils, and finds that a combination of the distillation and the fuchsin process is the most sensitive.

He proceeds as follows:

A little of the essential oil is poured into a dry test-tube, taking care not to wet it in its upper portion, and a few fragments of fuchsin are then sprinkled upon the middle and upper inside surface of the test-tube. On heating, no change will be observed, if alcohol was absent. But if the oil contained even as little as one-tenth of one-per-cent of alcohol, the ascending vapor of the latter will cause each particle of fuchsin to be surrounded by a red stain, either at once or after setting the test-tube aside for a short time. It is easy to recognize by this test the presence of one milligramme of alcohol in one gramme of the oil.

The author, in quoting this test, applies it specifically to oil of lemon, and attaches the remark that the method will undoubtedly be applicable to other essential oils or to the detection of alcohol in other liquids which do not of themselves exert any solvent action upon fuchsin.—*Pharm. Zeitung.*

[We have tried the process upon a few other oils, and have found it, so far, to work satisfactorily. We recommend to put a small quantity of essential oil into a *long* test-tube, without wetting the sides, then to push a loose pellet of cotton down to the middle of the test-tube, and to sprinkle a very little powdered fuchsin in. The boiling must be done cautiously.—Ed. A. D.]

Pure Hydrosulphuric Acid Gas.

In precipitating arsenic from solution it is necessary to have sulphydric acid that is absolutely free from arsenic. Otto and Reuss recommend, for the preparation of this gas, the substitution of calcium sulphide for iron sulphide. The former may be prepared by heating gypsum and charcoal together at a high temperature. This is acted upon by pure acid free from arsenic. As no hydrogen is formed, any arsenical compound in the acid could not be reduced to arsenetted hydrogen. To obtain a steady and quiet current of gas, large pieces of the calcium sulphide are placed in a Woulffe's bottle, a little water poured on it, and a twenty-five-per-cent hydrochloric acid allowed to flow slowly from a funnel with stopcock, drop by drop. Barium sulphide is also an excellent material for this purpose.—*Chem. Zeit.*

Test-Paper for Detection of Albumin.

This mode of testing for albumin is recommended by Dr. G. B. Fowler, of New York, on the ground of its sensitiveness and the convenience of its applications. (It can be used at the bedside of the patient.) The paper can be saturated with a solution of tungstate of sodium, potassio-mercuric iodide or the ferrocyanide of potassium, and other papers acidulated with citric or acetic [?] acid. Let the papers dry, cut them into strips, place them in a box with a partition, and, when it is desired to examine a specimen of urine for albumin, put one slip of each of the two kinds of paper into the fluid, and if albumin is present it will be seen to fall in a cloud. The paper prepared with the potassio-mercuric iodide is so sensitive that it reveals the presence of five one-hundredths of one per cent of albumin.

This solution is made by adding 3.33 parts of iodide of potassium and 1.35 parts of bichloride of mercury to 100 parts of distilled water.—*N. Y. Med. Jour.*

Bleaching Bone and Ivory.

C. Puscher says in the *Chemisches Centralblatt* that bone and ivory may be permanently bleached when they have become yellow by age, by using the following process.

25 Gms. of pure zinc white are to be covered by 40 C.c. of water and 50 C.c. of concentrated sulphuric acid gradually added. 150 C.c. of hot water are then added, and with stirring just enough water of ammonia to redissolve the precipitated hydrate of zinc. Enough solution of sulphate of copper is added to give the liquid a bluish white tint.

After allowing the objects to be bleached to lie for several days, they are rinsed with water.

To Remove Ink-Stains from Carpets.—Bœttger recommends the use of a concentrated solution of sodium hypophosphite for the removal of ink from woven tissues. Recent stains should be thus easily removed, old ones must be rubbed with the solution for some time. For old ink-spots the carpet may be moistened with hot water (and, if convenient, kept over boiling water), and finely powdered oxalic acid rubbed upon the spot. Ammonia water should be in readiness, and the acid neutralized if the original color of the carpet is affected. In the case of marking-ink stains, the fabric may be soaked in a solution of calcium chloride and rinsed in ammonia water. —*Weekly Drug News.*

Detection of Tartaric in Citric Acid.

According to H. Athenstädt, lime-water may be used as a very delicate test for this purpose. But it is necessary that the lime-water be fully saturated, so that 100 C.c. of it require *not less than* 4.8 C.c. of standard volumetric hydrochloric acid.*

0.5 Gm. of the citric acid are dissolved in 10 Gm. of water, and of this solution 5 drops are carefully added to 15 Gm. of the lime-water. Even if only traces of tartaric acid were present, a distinct turbidity will be noticed after a few seconds, which becomes more intense as the drops of the acid solution diffuse through the lime-water and becomes mixed with it. Shaking of the test-tube must be carefully avoided.

If as small a quantity as one per cent of tartaric acid is present, the above test will certainly detect it.

The author found seven different samples of citric acid, obtained from different drug houses, to show undoubted traces of the presence of tartaric acid. And he is even inclined to coincide with the assertion made by a very respectable firm that citric acid, entirely free from tartaric, is not to be found in the market at all. [This assertion is rather too bold, in our estimation.—Ed. A. D.]—*Arch. d. Pharm.*

Artificial Heliotropin, or Piperonal.

This substance, now playing an important rôle in perfumery, is prepared in the following manner.

Piperin is first prepared by the usual method from pepper (preferably white pepper), and converted into piperate of potassium, by boiling it for twenty-four hours with an equal part of potassa and 5 parts of ordinary alcohol. This is then dissolved in 40 to 50 parts of hot water, and the hot solution slowly mixed, under constant stirring, with a solution of 2 parts (that is, twice the weight of the piperate of sodium) of permanganate of potassium. The resulting magma is put on a strainer and repeatedly washed with hot water, until it no longer has the characteristic odor of heliotropin. The united liquids are now distilled, and from the first portions of the distillate, which are caught separately, the larger portion of the heliotropin or rather piperonal ($C_8H_6O_3$) separates, on cooling, in crystals; the remainder may be obtained by shaking the distillate with ether.—After *Chem. Zeit.*

Manganese Varnish.

One of the best and most valuable varnishes is that which is prepared with certain oxides or salts of manganese, particularly the borate. 2 parts of perfectly dry and white borate of manganese (free from iron), reduced to an impalpable powder, are gradually mixed with 10 parts of linseed oil, heated in a suitable vessel and thoroughly incorporated by continuous stirring. The heating is continued until the oil has acquired a temperature of about 200° C. It is to be observed that borate of manganese yields a rapidly drying varnish only if completely from iron. Next, 1,000 parts of linseed-oil are introduced into a kettle and heated until bubbles arise; to the hot oil, the previously prepared mixture of manganese borate and oil is added, in a thin stream, after which the heat is increased and the mixture raised to a brisk boil, for about twenty minutes. The varnish is then finished and may be dipped out. It should be strained through cotton, while hot.—*Metallarbeiter.*

* One gramme of pure, freshly ignited carbonate of sodium requires for complete saturation 18.868 gm. of this acid.

Preparation of Metallic Zinc Free from Arsenic.

ACCORDING to Prof. F. Stolba, zinc entirely free from arsenic and nearly free from iron may easily be obtained from the crude metal if it is exposed simultaneously to the action of the vapor of sulphur and of steam in such a manner that the melted metal comes in contact with the vapors while it is at the bottom of the crucible.

Plaster of Paris is intimately mixed with about one-fourth of its weight of powdered sulphur, and the mixture made into a thick dough with water. This dough is formed into balls of about five *cm.* (two inches) in diameter, and the balls are then, while still moist, stuck upon long wooden sticks, of suitable thickness, so that they will firmly adhere when dry. They are now ready for use.

The impure metal having previously been melted in a crucible, one of the prepared balls is pushed down into the melted mass so that it will touch the bottom. A copious evolution of sulphur vapor and steam then takes place at once, so that it is necessary to use some caution, since the metal is set into a violent motion. When the latter ceases, the ball is removed, the outer crust removed, and the operation repeated until the impurities are removed. It is best not to use more than one kilo (two and one-fifth pounds) of metallic zinc for one operation.

So far as the removal of arsenic alone is concerned, Prof. Stolba found that steam alone, or the vapor of sulphur alone will effect it, but any accompanying iron is best removed by employing the two agents together.—*Pharm. Zeitung.*

Condurango.

SOME years ago we had reason to hope that this much-vaunted "remedy" for cancer has been finally banished from the medical armamentarium, in view of the almost unanimous reports as to its utter uselessness. We were rather surprised when we found that the German Pharmacopœia commission had incorporated the drug in the new German Pharmacopœia, published towards the end of 1882. Since then we have heard but little of it, until lately, when the results of the experience of Dr. A. Hoffmann, in Basle, were published (*Schweiz. Wochensch. f. d. Pharmacie*, 1882, No. 4). This practitioner claims that, of 108 carcinomatous patients treated *without* condurango, 9.1% improved, 25% remained stationary or progressed, and 64.8% died during the years of 1871–1881. During the past three years, twenty other patients were treated with condurango; 40% of these were improved, 10% remained uncured, and 50% died. According to Dr. Hoffmann, it is necessary to employ only the condurango from Ecuador (from *Gonolobus Condurango*), and to avoid that from Venezuela, which has a sharp, pepper-like taste, and is repulsive to the patients.

Cement for Caoutchouc.

POWDERED shellac is soaked in ten times its weight of stronger water of ammonia, whereby a transparent, gelatinous mass is produced, which is afterwards melted by placing the vessel in hot water. (It is also stated that the mass becomes liquid of its own accord, on standing for some weeks.) When using the cement, the surfaces of the caoutchouc are coated with some of the liquid mass and then firmly pressed together. As soon as the ammonia has evaporated, the caoutchouc joint hardens, and the points of union become as firm as the caoutchouc itself. The same cement is also stated to be suitable for fastening caoutchouc upon metal, glass, or other smooth surfaces. —*Polyt. Notizbl.*

The Maple Sugar Season.

IT is so easy to adulterate maple sugar with cane sugar or maple syrup with glucose that those who really care for the genuine article find it rather difficult to get. This was notably the case last year, when the weather was not propitious for a good deal of maple sap. The best conditions for a good sugar season are found when the ground has been deeply frozen by a severe winter, followed by a spring which commences to open early, but gives several weeks of alternate freezing and thawing, before the frost is all out of the ground; weather when it freezes quite sharply at night and thaws freely during the day, always gives a good "sap run." The following tables show the yields of maple sugar in the principal sugar producing States for the years 1870 and 1880 as given in the census reports of those years.

	1870. lb.	1880. lb.
Vermont,	8,864,302	11,261,077
New York,	6,692,040	10,693,619
Ohio,	3,469,128	2,895,785
New Hampshire,	1,800,704	2,731,745
Michigan,	1,781,855	3,423,149
Pennsylvania,	1,545,917	2,866,010
Indiana,	1,332,332	235,117
Total,	25,486,278	34,106,499

But the above table only includes those States producing over 1,000,000 pounds. The addition of the product of those other States which produce less than this amount annually would considerably swell the above total for 1880, and probably bring it up nearly, if not quite, to that of 1860, which was about 40,000,000 pounds, and the largest ever recorded. This, at an average of ten cents per pound, would give a value of $4,000,000.

Substitute for Ruby Glass.

MR. W. E. DEBENHAM makes use of a kerosene lamp giving a flame of a fair degree of brilliance, and glazed with green glass of a class having a somewhat rough appearance and now being extensively employed in church and other windows, in which the colored glass of a former epoch is being imitated. This green pane is supplemented by two thicknesses of pale orange paper, and the light it gives is very agreeable to work by, and not detrimental to the sight. On this latter subject, Mr. William Ackland, a clever surgeon oculist, of London, has said that the ruby light in general use in the dark room is proving exceedingly injurious to the eyes of photographers. —*Sci. Am. Suppl.*

Solubility of Strychnine.

P. CRESPI has determined the solubility of strychnine at ordinary temperatures and at 56°, 78°, and 98.5° in various solvents. He finds that 1 part of water at 14.5° dissolves 0.025 part of strychnine; that 1 part absolute alcohol dissolves from 0.302 to 0.325 at 8.25° and 10.75°; 0.975 at 56°, and 1.845 at 78°; that amyl alcohol, one of the best solvents, dissolves 0.525 at 11.75°, and 4.262 at 98.5°; that its solubility in dilute alcohol increases with the proportion of water up to 85° of Gay-Lussac's areometer, and diminishes at greater dilution.—*Gaz. Chim. It.*, 13, 175.

Neuralgia Pencils.

SO-CALLED neuralgia pencils are now being offered by a number of German pharmacists, especially in Berlin. They are said to consist essentially of a mixture of menthol, thymol, and eucalyptol, fused and cast in small conical pellets, which are fitted in a suitable handle. When the forehead and temples are touched with the pencil, a slight impression of burning is at first produced, and soon gives way to a pleasant, cool sensation. Several pharmacists claim priority in the invention. Friedlander exhibited neuralgia pencils at the late Vienna Exhibition, and a year ago "nerve crystals" were offered by Blaser, which were described in the *Pharmaceutische Zeitung* [See also NEW REMEDIES, 1882, p. 359] as consisting of a mixture of crystallized Japanese peppermint oil and camphor.—*Med. Record.*

Liebig's Infants' Soup.

ACCORDING to Meffdorsky (*Pharm. Zeitsch. f. Russ.*,, quoted in the *Rundschau*, this food can be thus prepared: Take 480 parts of freshly ground wheat flour, not the finest; 480 parts of ground malt; 15 parts bicarbonate of soda; mix with 960 parts of water and 4,800 of milk. Stir well over a gentle fire till the mixture begins to thicken. Then remove the mixture and stir well for five minutes. Heat again, and when it next begins to thicken, raise the heat till the mixture just begins to boil. Then pass through a fine strainer so that the husks may be removed. The food is sweet enough without additional sugar. It will keep for twenty-four hours.—*Chem. and Drug.*

Tamar Indien.

ACCORDING to the *Repert. de Pharmacie* of July last, the formula for making tamar indien is as follows:

Tamarind Pulp	450 parts.
Powdered Sugar	40 "
Powdered Sugar of Milk	60 "
Pure Glycerin	50 "

Mix and evaporate to the consistence of a soft extract. Then add:

Powdered Senna leaves	50 parts.
Powdered Anise	10 "
Essence of Lemon	3 "
Tartaric Acid	3 "

Mix and divide into 100 boluses. Strain them and roll in the following mixture:

Cream of Tartar	5 parts.
White Sugar	35 "
Sugar of Milk	35 "
Tragacanth	2 "
Tartaric Acid	2 "
Powdered Red Sandal	25 "

Dry, and put up in tin foil.—*Boston Med. and Surg. Jour.*

Reddened Carbolic Acid.

ACCORDING to Ebell, the crude crystalline carbolic acid contains substances which are colorless when pure, but some of which are changed by the action of air and heat—and still more by light—into non-volatile bodies, partly of a red, and partly of a yellow color. During the recrystallization, these substances remain in the residuary liquid. They are but slightly soluble in cold water, insoluble in benzin, but are dissolved by water containing sulphuric or phosphoric acid. On redistilling such a crude acid, the red coloring substance passes over with the first, and the yellow-coloring body with the last portions.—*Zeitsch. f. Anal. Chem.*

Action of Drugs on the Secretion of Milk.

M. STRUMPF'S observations on goats show that iodide of potassium diminishes the secretion of milk, the proportion of fat being also decreased. Alcohol increases the proportion of fat, but neither alcohol, morphine, pilocarpine, nor preparations of lead exerted any influence on the quantity of milk. Salicylic acid increased slightly the secretion, and notably increased the proportion of sugar in human milk. Traces of lead were found in milk when administered internally.

Koussinate of Sodium.

ONE of the most effective combinations of koussin is that with soda, which is obtained in the following manner:

Any desired quantity of koussin is dissolved in boiling water and bicarbonate of sodium is added until solution is effected. The solution is boiled a few minutes with a little animal charcoal, and then filtered. The resulting clear, and but slightly colored solution is evaporated in a porcelain capsule to dryness, at a gentle heat.

Koussinate of sodium is an amorphous powder, slightly hygroscopic, of an intensely bitter taste, and a whitish to slightly yellowish color. It is soluble in cold and still more soluble in hot water; also easily soluble in alcohol, excepting a little excess of bicarbonate of sodium, which is present. Being so readily soluble, it can be given in all forms, and is said to be a most effective agent against tænia and round worms.—*Bol. Farm.*, 1883, 319.

Phosphorated Solution of Albuminate of Iron.

L. FEICHTMAYER proposes to prepare this compound in the following manner:

The white of one egg (which should be as fresh as possible) is dissolved in 500 grammes of distilled water, the solution mixed with ten grammes of ethereal tincture of chloride of iron, decolorized by light, and finally with four drops of a one-per-cent solution of phosphorus in ether.

If the preparation is not needed immediately, it should be allowed to stand for twenty-four hours and then filtered.—*Pharm. Centralh.*

We give the formula merely as a piece of information; regarding the usefulness of the preparation we have strong doubts.

Solubility of Phosphorus.

BY means of converting the phosphorus dissolved by a given quantity of ether into phosphoric acid and determining the latter as ammonio-magnesian phosphate. A. Peltz ascertained the rate of solubility of phosphorus in ether. He found that ether of the sp. gr. 0.731, when shaken for one hour with phosphorus, dissolved 0.9783 per cent of the latter, and ether of sp. gr. 0.721, 0.9643 per cent.

100 parts of ethereal solution of phosphorus, therefore, contain almost exactly 1 part of phosphorus. For preparing the solution it is best to take finely granulated phosphorus, such as is obtained by melting in alcohol at 45° C. and shaking.

300 parts of alcohol of 95% dissolve 1.46 parts of phosphorus.

Glycerin dissolves only traces. From a solution of phosphorus in oil of turpentine, a white crystalline mass (turpentine-phosphorous acid of Schimff and Koehler) is gradually separated.—*Pharm. Zeit. f. Russl.*

BIBLIOGRAPHY.

DIE PFLANZENSTOFFE, in chemischer, physiologischer, pharmakologischer und toxikologischer Hinsicht. . . . Von DR. A. HUSEMANN, DR. A. HILGER, und DR. TH. HUSEMANN. *Vierte Lief.* 8vo. Berlin (Springer). *12 marks.*

[The Proximate Principles of Plants, etc.]

IN previous issues (see NEW REM., 1882, pp. 27 and 92), we have already drawn attention to the new edition of this important work of reference, which is so well known that it really needs no special introduction. The last and concluding part (Vol. II., p. 2) has just reached us, and we are now in a position to realize the large amount of labor involved in the recasting of the book. The arrangement is now according to the natural families, which has some advantages, though it necessitates more frequent reference from one article to another. The recent literature, both chemical and pharmacological, has been very thoroughly abstracted, and references are quoted in full, so that it is easy to determine from what date any additional information that may be desired will have to be searched for in journals or publications issued more recently.

It would be impossible to review a work of this kind, in the ordinary sense of the word. The use of proximate principles in medical practice becomes every year more extended, and a thorough acquaintance of the chemical and physiological history of each of these principles, so far as known at present, is of the greatest importance.

No progressive physician of our day, and no live pharmacist can afford to do without a comprehensive and exhaustive work like the present.

SUPPLEMENT ZU DER ZWEITEN AUSGABE DER PHARMACOPŒA GERMANICA. Für Apotheker, Aerzte, Medicinal-Beamte, Drogisten. Von DR. B. HIRSCH, Apotheker. 8vo. Berlin, 1883, pp. 718.

FROM the above work we have already given a few extracts (see pp. 64, 66, 73 of this journal), which will enable our readers to judge for themselves of its value. It embraces the important drugs, chemicals, and preparations omitted in the new German Pharmacopœia, but in use in Germany or in other countries. The new U. S. Pharm. has furnished a considerable number of additions.

Each article is treated in the strict descriptive and precise manner in which the officinal articles are treated in the Pharmacopœia. Wherever feasible, a commentary is added, in which references to other pharmacopœias frequently occur. The work contains very many valuable practical hints, and its acquisition will be found a very profitable investment—profitable both scientifically and financially.

THE VEGETABLE MATERIA MEDICA OF OF WESTERN INDIA. By W. DYMOCK, Surgeon-Major Bombay Army, etc. Part V. (conclusion). 8vo. Bombay, 1884.

THIS important work, which we have several times mentioned in our columns (see particularly NEW REM., 1883, p. 318), has been completed some time ago, and is now available to all who are interested in materia medica and its history.

Regarding the merits of the work, there is only *one* voice, and that is, that it supersedes the whole of the literature touching the subject issued previously. It is, therefore, one of those works which are absolutely necessary for reference. A great portion of the information afforded by it is historical, derived from native sources which had never before been laid under contribution. Even the commercial features (available supply, market price, etc.) of most of the drugs are recorded. In some places, the author appears to lean towards the belief that the Sanskrit treatises on medicine (by Susruta, Charaka, etc.) are quite ancient. This view is, however, not any longer entertained by the majority of competent judges. We regret that the author found it impracticable to give in the index the Oriental characters of those names, the true spelling of which (in Arabic, Persian, etc.) cannot with certainty be known from the English-spelled name. It would have rendered the work still more valuable to Oriental scholars.*

DRUGS AND MEDICINES OF NORTH AMERICA. A Quarterly devoted to the Historical and Scientific Discussion of the Botany, Pharmacy, Chemistry, and Therapeutics of the Medicinal Plants of North America, their Constituents, Products, and Sophistications. By J. U. LLOYD (Commercial History, Chemistry, and Pharmacy), and C. G. LLYOD (Botany and Botanical History). 8vo. Cincinnati: 1884. $1.00 per year.

WE have already announced the above work in a preceding number. The first issue now lies before us. The authors begin, as is usual in botanical works, with the Ranunculaceæ, and have included in this present number the following plants: *Clematis virginiana* L. (four illust.); *Thalictrum dioicum* L. (one ill.); *Thalictrum anemonoides* Mich. (two ill.); *Anemone nemorosa* L. (three ill.); *Anemone patens* L. var. *Nuttaliana* Gray (three ill.)

These subjects have been treated in a very exhaustive manner, all the accessible literature having been carefully collated, and a large amount of original information derived from the experience of the authors or from contributions of correspondents and co-laborers having been incorporated. From the method in which the above, perhaps less important articles have been treated, we may expect very interesting and valuable accounts of the more important drugs, some of which will be reached in the next number. As the authors are compelled by their plan to treat of all American plants that have ever been used medicinally, it must necessarily follow that important ones will alternate with those of lesser value.

The work is gotten up in excellent style, on good paper, and with very good illustrations (part of them full-page), in which special pains have been taken to delineate the parts correctly according to nature.

An extract from this number will be found in this journal on page 81.

ELEMENTS OF PHARMACY, MATERIA MEDICA, AND THERAPEUTICS, by WILLIAM WHITTA, M.D., etc. With lithographs and woodcuts. Second edition. London: Henry Renshaw, 1884.

THIS is a manual for the pocket, and contains the essential knowledge of the branches to which it relates in a form that is especially adapted for medical students.

Part first, relating to pharmacy, should be familiar to all physicians, whether they have occasion or not to dispense medicines.

In part second, under the head of Materia Medica, are briefly described most of the articles used in medicine in Europe or America, the important preparations of each being mentioned.

Part third: Therapeutics, is quite complete for a work of this class and is followed by a chapter upon remedies not official in the British Pharmacopœia, although many of them are quite important and some are officinal in the U. S. Pharmacopœia.

The chapter on the Administration of Medicines contains, among other matters, instructions for prescription writing, and rules to prevent incompatibilities.

Although in many of its details the work is better adapted for British students, owing to differences between the weights and measures used there and here, and the fact that it is based upon the British Pharmacopœia, there are many ways in which it would prove valuable for American students.

* In reply to a query received by us concerning the Oriental distich on the title-page, we have to say that it is from a poem in praise of God, by the celebrated Persian poet Sa'dî. The verse is well known to Persian scholars owing to an abnormal plural-formation, only once indulged in by the author. It reads thus:

Berg(i) dirachtân sebz der naçar(i) hûshyâr
Her varaki defterist ma'rifat(i) kirdgâr.

"The foliage of green trees, in the eyes of the intelligent,
Is, each leaf of it, a book of the knowledge of God."

A COMPANION OF THE UNITED STATES PHARMACOPŒIA: Being a Commentary on the Latest Edition of the Pharmacopœia and Containing the Descriptions, Properties, Uses, and Doses of all Officinal and Numerous Unofficinal Drugs and Preparations in Current Use in the United States, together with Practical Hints, Working Formulas, etc. Designed as a Ready Reference Book for Pharmacists, Physicians and Students. With over 650 original Illustrations. By OSCAR OLDBERG, PHAR.D., etc., and OTTO A. WALL, M.D., PH.G., etc. New York: William Wood & Co., 1884, pp. 1220, 8vo.

THE appearance of this work has for some time been expected, and the reason for the delay can be appreciated after a consideration of its size, and the number and originality of its illustrations. It differs from either of the dispensatories in containing fewer references to articles but little used, and in having more brief therapeutic sections. It is especially strong in the department of pharmacognosy, the chapter on the Microscopical Structure of Plants bring particularly noteworthy. It is liberally provided with the tables likely to be useful for the pharmacist. While it includes a great deal of matter relative to non-officinal articles, it is really what its name would imply: a companion or commentary on the Pharmacopœia, furnishing, in greater detail, information which could not reasonably be included in a work aiming at the establishment of standards for identity and purity.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,276.—**Mellin's Food** (Dr. A. S. W.).

We have had occasion to inspect a recent analysis of Professor Fresenius, of Wiesbaden, of this article, and here give an abstract of his results.

The preparation is a moderately-fine, yellowish-white, hygroscopic powder. It is not completely soluble in water, but is almost completely so—with the exception of a trace—in the stomach. The constituents are as follows:

I. Soluble in water:		
Non-nitrogenized, organic.		
Maltose and Dextrose (33.46+35.92).....	69.38	
Nitrogenized, organ.		
Albumen (2.13), Peptone (0.87), Amides (1.69)	4.69	
Inorganic.....	4.23	
		78.30
II. Insoluble in water, but almost completely dissolved in the stomach:		
Non-nitrogenized, organic.		
Fat (0.08), Cellulose, etc. (3.10).....	3.18	
Nitrogenized, organ.	5.06	
Inorganic.....	0.14	
		8.38
III. Water, including loss by drying at 120° C.		13.32
		100.00

As a matter of analytical interest, it may be added that the albuminoids were determined by Prof. Fresenius in the following manner: The albumen is calculated from the nitrogen of those nitrogenized substances which are precipitable by cupric hydrate in a solution containing a slight excess of acetic acid. The calculation is made by multiplying the nitrogen with 6.25. The peptones are found in a similar manner by calculation from the nitrogen obtained from the precipitate produced by phosphomolybdate of sodium in the filtrate from the preceding operation, after acidulating with hydrochloric acid. The amides result from the difference of the sum of nitrogen of the protein-bodies, peptone and that obtained from the nitrogenized substances insoluble in water on the one hand, and the total nitrogen on the other hand. Of the 9.75% of nitrogenized constituents, only 0.2% were found to be insoluble.

No. 1,277.—**Matschalka** (E. S.).

From recent exchanges we learn that this is a substitute for sponge, its synonym being given in the announcements as "Caucasian washing sponge." It is a Russian word, denoting a bunch of linden bast used for scouring bathtubs, sinks, etc., or for whitewashing walls. It is commonly used as packing material. This name appears to have been applied to the new substance ("Caucasian washing sponge") probably because it has some similarity with it. According to Professor Wittmack, it "is derived from bananas," and is perhaps plain banana fibre (see *St. Petersb. Med. Wochensch.*, 1884, No. 4). Hanausek states that Professor Wittmack pronounced it to be probably obtained from the refuse of manila hemp (*Musa textilis;* see *Bot. Centralbl.*, 1884, No. 10). It is reputed to have antiseptic properties, and "to be unable to take up septic matter." This claim, of course, is more than doubtful.

No. 1,278.—**Testing Extract of Malt for Diastase** (B. W. S.).

The presence of diastase in extract of malt is, in itself, not necessary for the assimilation of the extract, but is of benefit in aiding any farinaceous or starchy food which it may come in contact with in the stomach, to be converted into sugar. It is, besides, a good criterion that the extract has been made at not too high a temperature, and probably in a vacuum apparatus, which circumstances always result in a more satisfactory product than if it is made in open vessels, and at a high temperature.

The quantity of diastase in a given extract of malt may be determined, according to Dunstan and Dimmock, by ascertaining how much starch it is capable of transforming into dextrin and glucose or maltose. Proceed as follows: Dissolve 0.1 Gm. of starch in 100 C.c. of hot water, and add to the solution 10 C.c. of 10-per-cent solution of the extract of malt. In a second flask, dissolve 0.1 Gm. of starch in 100 C.c. of hot water, and add 20 C.c. of the same solution of the extract. Then expose both mixtures, on a water-bath, to a temperature of 35° to 40° C., for three hours. Now place a few drops of the liquid upon a plate of glass, and add to it a drop of solution of iodine in iodide of potassium. A blue color would show that the starch has not yet been completely converted into maltose. If this conversion is complete in the first, but incomplete in the second, the experiment must be repeated with say 12 and 18 C.c. of the 10% extract solution; or else, 2 C.c. of this solution at a time may be added to the first flask, and the manipulation repeated. Supposing 15 C.c. of the 10-per-cent extract solution had exactly converted the 0.1 Gm. of starch into dextrin and sugar, then we may express this by saying: 1 part of starch requires for saccharification 15 parts of the extract of malt (see *Arch. d. Pharm.*, 1879, ii., p. 468). Since 1 part of diastase is capable of transforming 2,000 parts of starch into sugar (best, at a temperature of 75° C.), it would seem to be most useful to ascertain the quantity of starch which can be converted by 100 parts of extract of malt. Hager (who proposes this), says that the quantity required should be at least 10 parts, and proposes to word the test thus: 100 parts of extract of malt of ordinary extract-like consistence should be able to convert at least 10 parts of starch into sugar, by digestion, at a temperature of 50° to 60° C. during 5 hours. This would be an approximate limit, a sharp one not being possible, since the action of diastase, just like that of pepsin upon albumen, is not sharply defined, and is dependent upon time and temperature. The above test can be used for determining whether the extract has been prepared from malt or artificially, only if the solution of the extract has first been neutralized by a little carbonate of magnesium or calcium. [If the extract of malt were mere glucose, the trace of acid remaining in the latter would gradually act upon starch like diastase.] 4 parts of starch yield 3 parts of maltose and 1 part of dextrin. Above 65° C., more dextrin and less maltose is formed.

No. 1,279.—**Indelible Ink** (W. W. S).

We have stated several times already, that there is no ink which is absolutely indelible under any circumstances.

An ink which is altogether unaffected by chemicals is one having finely divided carbon as a base. Such is, for instance, India ink. But the trouble is, that this kind of ink remains on the surface of the paper, and may usually be removed by mechanical means.

Silver and other metallic indelible inks, of which we have given a number of formulæ heretofore, are likewise not absolutely indelible, though they resist for a long time, mechanical action (of the laundry, for instance).

One of the most indelible black inks, *upon paper*, is that which we have several times quoted already, and which was originally devised by Mr. Isidor Furst, member of the printing house which prints this journal. Its indelibility depends on the fact that when bichromate of potassium and gelatin come together, particularly in form of a thin film, in the presence of daylight, the film becomes insoluble in hot or cold water. A good formula is the following:

Gelatin.....	2 grains.
Bichromate of Potas.	2 "
Nigrosine.....	10 "
Water.....	1 fl. oz.

Dissolve the gelatin and the nigrosin in most of the water, and the bichromate of potassium in the remainder. Mix the two solutions in an amber-colored bottle.

If it is found that the ink "gums" in the pen, the quantity of gelatin and bichromate may be somewhat reduced.

But the ink, when properly made, and dry, cannot be entirely removed from paper by hot or cold water, acids, or alkalies.

No. 1,280.—**Cologne** (J. A. & Co.).

This correspondent asks us to give a formula for a cologne which will be similar to Hoyt's.

There are many brands of excellent cologne in the market, all of which have some special, distinctive odor. Some of them approach each other quite closely, others again are quite different. We have frequently given formulæ for colognes, but we are not aware of any combination which will produce the exact flavor or even a very close approximation to the flavor of Hoyt's (or, for that matter, of some other prominent makers). It would require a long series of experiment, with rather costly materials, to hit upon the proper ingredients and their proportions.

We are at all times willing to supply the best formulæ in our possession for the most varied purposes—and we have extensive files at our disposal—but we would not be willing to publish broadcast the private formula of a manufacturer of *non*-medical products, *even if we knew it*, since this is his exclusive property, acquired by much expenditure of time and money, and, in fact, constituting a very considerable part of his capital. We do not, of course, interpret our correspondent's request as having had this tendency, but we merely take the opportunity of again stating our views of the extent to which the publication of manufacturers' private formulæ would be justifiable or not. With the manufacturers of secret remedies or nostrums we have no sympathy or affiliation. If these formulæ come to our knowledge and are demanded in the interest of pharmaceutical morals, we will never hesitate to furnish them, though we cannot spend the time to analyze them ourselves, merely for satisfying curiosity.

No. 1,281.—**Starch Polish or Gloss** (W. W. S.).

A good formula is the following:

Mix intimately 435 parts of wheat-starch, 85 parts of borax, 10 parts of common salt, 75 parts of best gum Arabic, and 275 parts of stearin (stearic acid), all in fine powder. To reduce the last-named article to powder is somewhat difficult, and the originator of the formula (Friese of Braunschweig) proposes, therefore, first to comminute the stearic acid upon a grater, and then to triturate it, in a mortar, with benzin, until it is a dry powder. Hager advises to first melt the stearic acid in a capsule, then to introduce the starch, previously dried and powdered, and, after thoroughly mixing, to cool the mass to about 5° C., in an ice-box, after which it may be reduced to powder in a mortar, and mixed with the other ingredients.

The quantity of stearin in the preceding formula is really larger than is required; but we quoted the process nevertheless, as it appears to be indorsed by judges.

The above preparation, of course, is intended to be used merely as an addition and aid to the ordinary starch in the starching process.

Usually, the quantity of stearin (or of wax, which many use) required to be added to ordinary starch need not exceed 1 part in about 120. A mixture of this kind may be kept ready by melting 1 part of stearin, adding about 15 or 20 parts of starch, cooling, powdering the mixture, and then incorporating with enough plain starch to make 120 parts.

No. 1,282.—**Estimation of Licorice** (A. E.).

This depends upon the quantity of glycyrrhizin contained in it. In general, the process of the U. S. Ph. for preparing ammoniacal glycyrrhizin accomplishes the object. But for assay-purposes, it is best applied as follows (according to Hager):

A portion of the licorice (extract) is cut into small pieces, which are thoroughly died, in order to ascertain the percentage of water. Another portion of 10 Gm. is cut small, put into a beaker, covered with 30 C.c. of water of ammonia (of 10%), and dissolved by stirring. If time is an object, the licorice may be dissolved in 15 C.c. of water at 35° to 50° C. and 15 C.c. of stronger water of ammonia (20%) then added. The solution must be complete without any visible residuary fragments or granules. Small portions of alcohol (of 90 to 92%) are now successively added at first, and afterward enough of the same alcohol to make the whole measure 110 C.c. After precipitation is completed, the liquid is allowed to settle and then filtered. The residue in the filter is washed with a mixture of 30 C.c. of water of ammonia and 110 C.c. of alcohol, until the washings appear, at most, only pale yellowish. The residue on the filter is collected with a spatula, and fully dried in a capsule. In a good specimen of licorice, this residue amounts to 50, in a very good specimen to 40 per cent. The filtrate is deprived of alcohol, first by filtration, and afterwards by evaporation in a capsule, until it forms a thick syrup. This is now mixed with 10 C.c. of glacial acetic acid and enough absolute alcohol to make it measure 150 C.c. After a few hours, the precipitate is collected on a tared filter, washed with absolute alcohol, dried and weighed. If a little glycyrrhizin has become adherent to the walls of the vessel, the latter is dried, when the crust may be removed with a knife. Instead of trying on the filter, the glycyrrhizin may also be transferred to a capsule and weighed there. Towards the end, the drying must be conducted at 115° C. The weight of the dry glycyrrhizin should be, at least, 1.3 Gm. or 13% of the licorice, calculated as dry. In licorice of good quality it amounts to 15 per cent. This glycyrrhizin is not quite pure, containing about 5 per cent of impurity, but for practical purposes the result is reliable enough. If the liquid, from which the glycyrrhizin has been precipitated, is evaporated to dryness, the clear brown residue consists of extractive matter and sugar amounting to about 35% of the dried licorice. If it amounts to only 30% or less, the licorice may be regarded as inferior.

No. 1,283.—**Troublesome Ointment** (Subscriber).

This correspondent asks how the below-mentioned prescription can be filled so that it will remain soft, like an ointment. He has tried it several times, but it always became hard.

The prescription is as follows:

Iodoformi	5.0
Zinci Oxidi	10.0
Bals. Peru	10.0
Ol. Cadini	15.0
Ung. Petrolei	30.0

Misce. Ft. ungentum.

Iodoform loses its odor when mixed with balsam of Peru. There can be hardly any doubt that it is at least partly decomposed, but the rationale is not known. When oxide of zinc and balsam of Peru are triturated together, the mixture, after a time, becomes stiff and tough, probably owing to the formation of cinnamate of zinc. This is the only reason which occurs to us just now, for the fact that the ointment becomes stiff. We find also that it has a tendency gradually to become lumpy. It begins to look as if some extract had been imperfectly rubbed up with some ointment, being full of blackish specks and flakes. These are, probably, derived from the Balsam, after it had undergone decomposition.

We find that the hardening and disintegration may be prevented, or at least greatly retarded, by incorporating a little olive oil, before adding the petroleum ointment. About 5 or 10 Gm. will suffice.

Formulæ asked for.

Some of our correspondents ask for the composition of the following proprietary articles. Perhaps some of our readers can furnish one or the other:

1. Cuticura Remedies.—2. Hoofland's Tonic.—3. Hamilton's Malarial Specific.—4. Warner's Safe Kidney and Liver Cure.—5. McAllister's Cough Mixture.

THE Swedish Government intend to establish a botanico-physiological station in the north of Sweden, for the study of the flora and the diseases of the crops in that part of the country.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

294,858. *Paper Wrapper.*—Dundas Dick, New York, N. Y.

294,876. *Ointment for Tetter.*—Manlius Huggins, Waynesboro, Miss. Consists of chrysophanic acid, pure glycerin, oil of sassafras, laudanum, and vaseline.

295,009. *Bottle-Filling Device.*—Philip J. Hogan, Negaunee, Mich.

295,078. *Remedy for Hernia.*—Edward C. Thatcher, Kansas City, Mo. A compound consisting of glue, sugar, honey, gutta percha, glycerin, borax, alum, sulphur, black-lead, nitrate and bitartrate of potash, and camphor, mixed and formed into pads, and adapted for use with a portable electric element.

295,220. *Manufacture of Fly-Paper.*—Edward F. Baker, Chicago, Ill., assignor to Margaret M. Baker, same place.

295,222. *Toilet-Case.*—Hart O. Berg, New York, N. Y.

295,276. *Vaginal Irrigator.*—Aaron Palmer, Rochester, N. Y.

595,358. *Perfumery-Charged Cane and other Handles.*—Ezra R. Cowles, Henry A. Cowles, and Martin Osborne, Westfield, Mass.

295,633. *Removing Oleine from Linseed Oil.*—Thomas Henry Gray, Brooklyn, N. Y., assignor of one-tenth to John Leavens, same place.

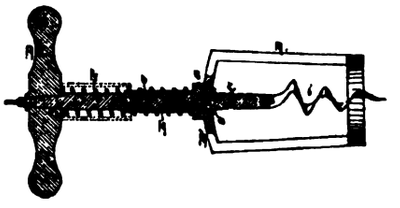
295,721. *Cutter for Wires and Cords of Bottles.*—John Bevins, and Amedy Propst, New York, N. Y.

295,755. *Vaginal Syringe.*—James A. Hawley, Canadaigua, N. Y.

295,798. Speculum.—George W. Pagett, Oxford, Ind.

295,825. *Manufacture of Parachinanisol.*—Zdenko Hans Skraup, Vienna, Austria Hungary, assignor to Badische Anilin and Soda Fabrik, Manheim, Germany.

295,876. *Antiseptic Solution.*—John F. Kennedy, Boston, Mass. Composed of water, alum, granulated sugar, saltpeter, and gum-arabic.



295,962. *Cork-screw.*—Alvis J. Walter, Philadelphia, Pa. A cork-extractor having a screw, a handle, and a yoke or frame, a spring bearing against said frame and handle whereby, as the screw is driven into the cork, said spring is compressed and exerts its resultant increased pressure to cause the automatic withdrawal of the cork.

296,260. *Apparatus for the Manufacture of Bicarbonate of Soda.*—Charles Wigg, Liverpool, County of Lancaster, England.

296,435. *Decanting Pump.*—Elvin O. Murdock, New York, N. Y.

296,452. *Washing Compound.*—Annie E. Rhoads, Barboo, Wis. Consists of sal-soda, saltpeter, and gum-camphor.

296,661. *Combined Cork-Screw and Key-Ring.*—Wilber B. Woodman, Newark, N. J.

296,673. *Combined Water Filter and Cooler.*—Frank E. Cady, Auburn, N. Y.

ASSOCIATION AND COLLEGE NOTES.

New York.—The pharmacists of Delaware County, at its initial meeting in Delhi, on the 10th of April, elected G. J. Sullard, *President;* L. E. Howard, *Vice-President;* F. L. Norton, *Secretary;* and W. Winter, *Treasurer.* The next meeting will be in June.

The pharmacists of Buffalo (Erie Co.) are taking steps to secure an organization for mutual protection, similar to the one recently established in New York City.

The annual dinner of the Alumni Association of the New York College of Pharmacy was held at Martinelli's, on Thursday evening, April 3d. About fifty gentlemen were present.

Toasts were responded to by Dr. H. J. Menninger, Prof. P. W. Bedford, Messrs. L. M. Royce, B. F. Hays, Fred. Hohenthal, and President Ewen McIntyre. Several songs were rendered by Mr. G. J. Seabury, in a very acceptable manner.

The New York College of Pharmacy held its annual dinner at Delmonico's, on Tuesday evening, March 25th.

Letters of regret were received from President Arthur, Gen. Grant, Prof. W. De F. Day, Hon. R. P. Flower, Judge Brady, Rev. H. W. Beecher, and many other prominent gentlemen.

Nearly all the leading wholesale druggists of New York were represented at the dinner, as were also the more prominent pharmaceutical journals.

Toasts were responded to by President McIntyre, Dr. Meninger, Prof. Chandler, Messrs. Seabury, Gellatly, and Robbins, and the Rev. Dr. Pullman.

The dinner proved to be a very enjoyable affair, reflecting great credit upon Messrs. Macmahan, Atwood and Balser, who composed the committee of arrangements.

The New York Protective Association of Drug Clerks held its second meeting on Wednesday, March 26th, in the College of Pharmacy building. About forty gentlemen were present. The only business of importance transacted was the discussion and suspension of the second clause of the by-laws which we published in our April number.

Twenty-three new names were added to the roll of members, and about $100 were subscribed to defray legal expenses incurred in prosecuting pharmacists who employ as prescription clerks those holding no licenses.

The next meeting was held on Sunday afternoon, April 6th, at the same place. Thirty-five members were present.

The Executive Committee reported that they had secured as attorneys to the association Messrs. Evarts, Southmayd and Choate, and that they had obtained a charter.

Owing to the small attendance, no business was transacted and the meeting adjourned to Friday, April 25th.

The German Apothecaries' Association held its "Calico-Kræenzchen" at Beethoven Hall, on Thursday evening, April 17th. The floor was well filled and during the twenty-four dances, universal enjoyment reigned.

The New York Druggists' Union continues to meet at the College of Pharmacy. Although the meetings are not so largely attended, the interest taken does not seem to have abated.

Iowa.—The fifth annual meeting of the Iowa State Pharmaceutical Association will be held in Masonic Temple, Marshalltown, beginning May 27th, at 10 o'clock A.M.

The local secretary writes: "Our hall is 100x100 feet. In the centre is a room that we shall use for the convention, 36x54 feet, and on the north, south, and west are large rooms, well lighted and very well adapted for exhibition purposes."

The close proximity of the assembly and exhibition rooms affords attending members ample time to see the exhibits before and after the sessions of the association, and as some twenty firms have already signified their intention to be represented in the exhibit, and many more are expected, this feature of the meeting promises to be unusually interesting and profitable.

A sufficient number of papers, in reply to queries, and volunteer essays are expected, to contribute to this meeting unusual professional interest.

The convenient location of the place of meeting—Marshalltown being easily reached from nearly all parts of the State; the favorable season of the year; the exigency of the time which, in view of recent legislation, gives especial importance to this meeting, as affording the members an oportunity to discuss the situation of the pharmacy law, especially as relating to the sale of liquors, should conduce to bring together the greater part of the membership, and insure a good meeting.

The chairman of the Committee on Transportation is in receipt of notice from the following roads, granting a reduction of fare to one and one-third for the round trip (full fare going and one-third fare returning): Chicago and North-Western; Chicago, Burlington and Quincy; Chicago, Rock Island and Pacific; Illinois Central; Chicago, Milwaukee and St. Paul. Other roads leading into Marshalltown will probably make similar reductions.

Members having papers to present will please address the Chairmen of the Standing Committee as follows:

On Trade Interests—Mr. Milo W. Ward, Des Moines.

On Pharmacy and Queries—Mr. T. W. Ruete, Dubuque.

On Legislation—Mr. George B. Hogin, Newton.

On Adulteration—Emil L. Boerner, Iowa City.

All communications in reference to exhibits should be addressed to the local Secretary, Mr. C. J. Lander, Marshalltown.

Headquarters will be at the Tremont House. Rates, $2.00 per day.

Ohio.— At the twelfth annual commencement exercises of the Cincinnati College of Pharmacy, the degree of Graduate of Pharmacy was conferred upon the following gentlemen: C. S. Ashman, Charles J. Ertel, A. W. Flexer, W. H. Grothaus, A. F. Gwinner, O. M. Harter, L. A. Jeaucou, F. G. Kallmeyer, William Kiehl, Mrs. A. H. Merrell, Frank Meyer, O. L. Muench, B. J. Pardick, E. A. Rosenfeld, W. F. Schell, A. E. Schnittker, J. L. Schultz, E. D. Serogin, C. C. Seebohm, J. D. Stanton, B. E. Stehle, N. B. Taylor, L. A. Thilly, and Fred. Zimmerman.

Frank G. Kallmeyer received the gold medal; Leslie Soule won the silver medal.

The total number of students for the past year was one hundred and fifteen, thirty-five of whom were seniors.

Maryland.—The thirty-second annual commencement exercises of the Maryland College of Pharmacy were held in the Academy of Music, Baltimore, on Tuesday afternoon, March 25th. The degree of Graduate of Pharmacy was conferred upon the following gentlemen: Louis Bellerman, Charles Buschman, R. L. Brown, E. J. Bernstein, C. E. Davis, John A. Davis, Wm. C. Downey, Wm. L. Dunham, J. K. Eppley, C. W. Forrest, J. C. Groome, H. H. Hathaway, J. M. Hennick, George Kolb, L. F. Kornmann, E. E. Moyer, Chas. Mitzger, W. B. Orear, T. H. Richardson, Thos. K. Shaw, W. L. Sulzbacher, Geo. H. Stuart, Charles Shipley, Fred. Saultan, Conrad P. Strauss, Louis Schultze, P. P. Sappington, W. B. Taliaferro, J. C. Treherne, J. H. Woodcock.

The prizes were awarded as follows: First prize, a gold medal, to Conrad P. Strauss; second prize, to W. L. Sulzbacher; third prize to L. F. Kornmann.

The Simon analytical prize, a gold medal, was awarded to Fred. W. Saultan, and the practical-pharmacy prize to Thomas L. Richardson.

Pennsylvania.—The Pennsylvania Pharmaceutical Association, to meet at Wilkesbarre on the 3d of June, will be convened at Wood's Hall at 10 A.M. The headquarters will be at the Wyoming Valley House.

The Lancaster County Pharmaceutical Association have elected the following officers: *President*, Dr. H. B. Parry; *Vice-President*, J. R. Kaufmann; *Secretary*, A. A. Hubley; *Treasurer*, N. B. Cochran; *Executive Committee*, C. A. Heinitsh, T. B. Bechtold, Dr. M. T. Reeder.

The Pittsburgh College of Pharmacy held its fifth annual commencement on the evening of March 18th.

President George A. Kelly conferred the degree of Graduate of Pharmacy on the following successful members of the class of '84. D. F. Robinson, C. H. Beach, E. A. Shafer, W. S. Jones, A. M. Sorg, J. A. Koch, H. F. Thomas, Homer J. McBride, T. J. Russell.

The pharmacists of Luzerne Co. (Pa.) have organized a society which has been named "The Luzerne County Pharmaceutical Association."

At the meeting held March 28th, permanent organization was effected by the election of the following officers:

Dr. Avery Knapp, *President;* H. C. Chauce, C. M. Briggs and R. D. Williams, *Vice-Presidents;* W. D. White, *Secretary;* P. M. Barker, *Assistant Secretary;* and N. Wolfe, *Treasurer.*

The *Executive Committee* elected were Dr. Knapp, Messrs. Myers, Tuck, Evans, and Hollopeter.

The following resolution was unanimously adopted: *Resolved*, "That we are in full sympathy with the National Retail Druggists' Association and it is the duty of every member engaged in business for himself to give it its support by at once joining its ranks."

At the next meeting, held April 11th, a Reception Committee, consisting of Messrs. W. D. White, H. C. Tuck, N. Wolfe, M. F. Syphers and P. M. Barber, were appointed to provide for the entertainment of guests attending the meeting of the Pensylvania Pharmaceutical Association, to be held on June 3d and following days at Wilkesbarre.

The Alumni Association of the Philadelphia College of Pharmacy held its 20th annual meeting on March 17th. The following officers for the ensuing year were elected:

President, C. A. Weidemann, M.D., *Vice-Presidents*, W. R. Warner, Jr. and J. S. Beetens; *Treasurer*, E. C. Jones; *Recording Secretary*, W. E. Krewson; *Corresponding Secretary*, D. W. Ross; *Executive Committee*, Messrs. L. E. Sayre, and J. W. England.

The gold medal was awarded to John C. Falk, he having attained the highest general average of the class.

On the night of the 18th, a complimentary dinner was tendered the senior class by the Faculty.

The class presented the College with a life-sized portrait of Prof. Sadtler.

The 63d annual commencement exercises were held in the Academy of Music on the evening of March 19th. President Parish presided. Prizes were awarded to the following:

The Proctor prize (a gold medal) to F. X. Moerck, of Delaware; the Materia Medica and Botanical prize (microscope), to Harry L. Barber, Pennsylvania; The Remington Prize, to T. O.

Nock, Delaware; The John M. Maisch Prize, to Harry C. Cook. Ohio. Miss Grace Lee Babb, of Maine, received honorable mention, ranking sixth in a class of 150 graduates.

Massachusetts.—The State Pharmaceutical Association, which meets at Lowell on the 4th and 5th of June, will offer to exhibitors of objects of pharmaceutical interest, excellent opportunities for displaying their wares. Applications for space should be made at least fifteen days before the time for the meeting and should be addressed to the Local Secretary, Mr. G. C. Brock, to whom also goods should be consigned. Exhibits should be on the ground three to five days previous to the opening, to admit of proper arrangement. It is desirable that exhibitors should mention whether cases will be sent or not, and if so, whether they will require stands.

All articles must be in position previous to the opening of the exhibition on the 4th.

"Patents," "secrets," and "copyrights" are excluded.

A very enjoyable dinner and meeting was held at the Revere House, Boston, on the evening of March 26th, by the Boston Druggists' Association.

Rhode Island.—At the quarterly meeting of the Rhode Island Pharmaceutical Association, held in Providence on the 2d of April, the following new members were admitted: P. A. Fletcher, of Ashton; P. C. Lestonia, of Woonsocket; W. H. Garrett, E. C. Danforth, A. J. Myers, of Providence. During the ten years of the Association's existence its membership has increased from 29 to 126 members, 9 of which are honorary. The Association owes nothing, has $242 in the treasury, and credits to the amount of $169.50.

A committee of three was appointed, consisting of Messrs. D. J. Bruce, F. Smith, and E. H. Burdick to secure a better enforcement of the pharmacy law.

The next quarterly meeting will be at Newport, on the 2d of July, when the members and their wives will be entertained by President W. H. Cotton, who, by the way, has lately been appointed a member of the State Board of Pharmacy.

Illinois.—The Chicago College of Pharmacy, at its last commencement, granted fifty-six diplomas. The annual meeting of the College was held April 1st, at which the following were elected: *President*, Thomas Whitfield; *Vice-Presidents*, J. S. Jacobus, J. H. Wilson; *Secretary*, S. L. Coffin; *Treasurer*, T. H. Patterson; *Trustees*, G. M. Hambright, E. S. Bastin, George Buck, J. C. Borcherdt, E. K. McPherson, J. Conrad, H. Biroth, E. F. W. Henkel, E. H. Sargent, H. W. Fuller.

Mr. R. Rother, of Detroit, was elected an honorary member.

At the regular quarterly meeting of the Illinois State Board of Pharmacy, held at Chicago April 11th, the following candidates were successful in the examination: Charles Beck, E. C. Bargh, C. M. Briggs, G. E. Bauman, E. E. Day, C. L. Enslee, J. F. Forberich, J. W. Godfrey, J. S. Hays, H. J. Holthoefer, S. C. Kirk, H. B. Brown, O. J. Hartwig, William Hellstern, F. P. Kaun, Charles F. Judy, A. W. Baer, C. A. Earle, J. W. M. Eslaman, J. W. Garver, E. Kneuster, N. Lohman, Jno. Lynch, J. W. Morse, William Pittman, T. L. Porter, C. E. Reiss, S. P. Rogers, A. J. Riedel, C. S. Ross, J. R. Shean, S. C. Sexaner, M. R. Stuart, J. M. Smail, Eduard Shumpsik, John Stallings, L. S. Smith, F. L. Shinkle, F. M. Tyrrell, F. G. Waiss, E. H. Waltersdorf, and T. T. Wilson.

Seventy-eight candidates were examined.

Missouri.—The State Board of Pharmacy meet at Kansas City, on the 7th, 8th, and 9th of April; the board consisting of M. W. Alexander, of St. Louis; P. H. Franklin, of Marshall, and W. T. Ford, of Kansas City. Out of 70 candidates for license, 46 passed the examination and were registered, viz.

Arrow Rock.—W. F. Watts.
Brownington.—H. De la Vergne.
Butler.—W. C. McIrwin, J. T. Walls.
Carrolton.—I. W. Peckstein.
Car-Junction.—H. M. Brin.
Commerce.—C. L. Hameltars.
Fairfax.—C. W. Wheeler, Edward Springs, C. G. Hainline.
Fayette.—F. P. Hogan.
Fulton.—E. M. Balton, A. B. Jones, J. T. Pollard.
Green Top.—W. A. McKeacham.
Hummetal.—E. D. Garias.
Kansas City.—V. M. Barnett, G. F. Berry, T. F. Byrne, C. H. Carlisle, W. E. Carpenter, C. N. Dearth, J. C. Howe, O. F. Jones, W. E. Keyes, W. J. Lyons, T. J. Radford, G. W. Reeves, C. L. Richmond, J. D. Schenick, H. J. Walruff, D. Whitmeyer, D. V. Whitney, C. E. Zinn.
La Due.—S. H. Jones.
La Mar.—A. W. Tullock.
Lathrop.—C. C. Hamilton.
Meadville.—L. H. Rogers.
Rich Hill.—J. H. B. Adams.
Richmond.—J. A. Wilson.
Spickardsville.—R. B. Cush.
St. Cloud.—N. J. Young.
St. Louis.—H. Ralty, G. H. Speck, G. H. Thomas.
Trenton.—H. B. McGregor.

The next meeting of the Board will be at Jefferson City, July 7th.

Canada.—The fee of one dollar for renewal of the license to carry on the business of a chemist or druggist in the Province of Ontario becomes due on the first of May, and is payable to Geo. Hodgetts, 305 Yonge street, Ontario.

Kentucky.—The incorporators of the new "School of Pharmacy for Women," of Louisville, are: J. P. Boyce, T. W. Dudey, E. T. Perkins, E. A. Grant, P. W. Edwards, Charles Godshaw, Robert Cochran, A. H. Cochran, S. L. Avery, W. N. Haldeman, and N. Finzer.

New Jersey.—A meeting of the Hudson County (N. J.) Pharmaceutical Association was held in Jersey City, on Friday, April 18th, at 3 P.M.

Mississippi.—An exhibition of articles of interest to pharmacists will be held in connection with the first annual meeting of the State Pharmaceutical Association to be held on the 20th of May. Communications in relation to it should be addressed to the Secretary, Mr. H. F. West, Lafayette, Miss.

Cod-liver Oil adulterated with **Vaseline** is mentioned by the *Pharmaceutische Zeitung*, which says that saponification of the oil will leave the paraffin unchanged.

The Population of Japan.—According to the latest statistics, the population of Japan amounts to 36,700,118 inhabitants, subdivided as follows:

The Imperial family	5
Families of princes royal	31
Nobles	3,204
Ancient Samourai or chiefs clans	1,931,824
Common people	34,665,051

There is a priest to each 382 inhabitants. On the 31st of December, 1881, the number of priests was 94,126.

PHARMACEUTICAL CALENDAR.—APRIL.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.
Thurs. 1st.	Louisville (Ky.) Coll. of Pharm.
Fri. 3d.	American Chemical Soc.—New York, University Building, 8 P.M.
	Cleveland (Ohio) Pharm. Assoc.—Annual M.
Mon. 5th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.
Tues. 6th.	Kings Co. (N. Y.) Pharm. Soc.—B'klyn.
	Maryland Coll. Pharm.—Baltimore.
	St. Joseph (Mo.) Pharm. Assoc.
Wed. 7th.	Indianapolis (Ind.) Assoc. of Pharmacists.
Thurs. 8th.	Lancaster Co. (Pa.) Pharm. Assoc.
	Maryland Coll. of Pharm.—Baltimore.
	Maryland Pharm. Assoc.—An. M., Baltimore.
	Newark (N. J.) Pharm. Assoc.
	N. Y. German Apoth. Soc.
	Philadelphia (Pa.) Coll. of Pharm.—Alum. and Pharm. Meet.
Mon. 12th.	Maryland Pharm. Assoc.—At Baltimore. (J. W. Geiger, Local Sec.)
Tues. 13th.	Alabama Pharm. Assoc.—Annual Meeting, Montg'y. (M. M. Stone, of Selma, Loc. Sec.)
	Massachusetts Coll. of Pharm.—Boston.
	National Coll. of Pharm.—Washington.
	Indiana Pharm. Assoc.—An. M., Evansville. (W. L. Johnson, Local Sec.)
	Missouri Pharm. Assoc.—At Brownsville. (C. M. Kelly, Local Sec.)
Tues. 13th.	Texas Pharm. Assoc.—At Waco. (W. B. Morrison, Local Sec.)
Wed. 14th.	Cincinnati (Ohio) Coll. of Pharm.
	New York Board of Pharm.
	Nebraska Pharm. Assoc.—Annual Meeting, Omaha.
Mon. 19th.	Louisiana Pharm. Assoc.—Annual Mt., Baton Rouge. (B. Lewis, Local Sec.)
Tues. 20th.	Mississippi Pharm. Assoc.—Annual Meeting, Aberdeen. (H. F. West, of Fayette, Sec.)
	Philadelphia (Pa.) Coll. of Pharm.—Ph. Meet.
	St. Joseph (Mo.) Pharm. Assoc.
	St. Louis Coll. Pharm.—Trust. & Alum. Meet.
	Virginia Pharm. Assoc.—Annual Meet., at Lynchburg. (W. J. Martin, Local Sec.)
Wed. 21st.	Ohio Pharm. Assoc.—An. Mt., Cincinnati.
	New Jersey Pharm. Assoc.—An. Mt., Asbury Park. (W. C. Bakes, Local Sec.)
Tues. 27th.	Boston (Mass.) Druggists' Assoc.
	Kentucky Pharm. Assoc.—Annual Meeting, Louisville. (A. J. Elwang, Local Sec.)
	Iowa Pharm. Assoc.—An. M., Marshalltown. (C. J. Lander, Local Sec.)
Thurs. 29th.	Kings Co. Board of Pharm.—Brooklyn.

American Druggist

Vol. XIII. No. 6. NEW YORK, JUNE, 1884. Whole No. 120.

The Art of Dispensing.

THE *Chemist and Druggist* publishes a series of extracts from Dr. Herman Hager's latest edition of his work on "Technik der Pharmaceutischen Receptur," from which we copy the following practical notes:

WEIGHING FLUIDS.

In mixing fluids for a mixture, the rule must be observed to measure none, but to weigh each [this is the German custom.—ED. AM. DR.], and that the smallest quantity ordered should be put in the bottle first, then the next largest quantity, and so on. The reason is that the delicacy of the scales diminishes with the increased weight, and, besides, the medicines ordered in small quantities are generally the most powerful, and need to be dispensed with the greatest degree of accuracy. When so many drops of a fluid are ordered, it is usual to put the drops in first, so that, if a few drops too many fall, they can be returned. Fluids up to 1 gramme are generally dropped, and it is reckoned that, of the fatty and specifically heavy ethereal oils and of tinctures, 20 drops equal 1 gramme; of the other ethereal oils, chloroform, acetic ether, and spirit of ether, and aqueous fluids, 25 drops equal 1 gramme. Of ether, 50 drops equal 1 gramme. This calculation may not be quite accurate, but it accords with the Prussian medicinal tariff, and is what is understood by the prescribing physician.

[In measuring, instead of weighing, the smaller quantities and thinner fluids should invariably be measured first, or measured with a clean measuring-glass. For example, to measure 1 drachm of dilute hydrocyanic acid, after measuring ½ ounce or more of glycerin or syrup of squill, is clearly courting error. Equally incorrect would it be to use a 4-ounce measuring glass, however correctly graduated, to measure any small quantity of a powerful remedy like the hydrocyanic acid.—*Ed. C. and D.*]

ORDER OF MIXING FLUIDS.

When fluids are to be mixed which decompose each other, or may form combinations, the order of mixing may have a considerable influence on the condition and appearance of the mixture. For example:

	Grammes
Solution of Sesquichloride of Iron	5.00
Mucilage of Acacia	25.00
Distilled Water	200.00

If the solution of gum be added to the iron solution, the two form a gelatinous mass, which will not make a clear solution with the water and cannot be mixed evenly with it. A clear yellow fluid is obtained, however, if the iron solution and the mucilage are each first diluted with 100.0 of the water and then mixed, or if the iron be first mixed with all the water, and the mucilage be added last.

When tannin fluids are to be mixed with metallic salts or alkaloids, both should be well diluted before combination.

Acetate of Lead	0.25
Tincture of Opium	2.0
Distilled Water	200.0
Simple Syrup	25.0

In this case the sugar of lead should be dissolved in 100 grammes of the water, and the tincture of opium diluted with the rest of the water and added to the solution. In this way a slightly cloudy mixture is obtained instead of a mixture with insoluble flakes floating in it.

Decoction of Irish Moss	250.0
Tincture of Opium	2.5
Syrup of Saffron	50.0

In compounding this, the tincture of opium should be first shaken up well with the syrup of saffron, and the carrageheen mucilage added. If the latter is added to undiluted tincture of opium, flakes are formed which cannot afterwards be reduced by shaking.

When vegetable substances, wholly or partially soluble in water, especially such as contain tannin or like constituents, have to be mixed with metallic or earthy salts, the rule is that both the vegetable and the salt should be first dissolved in a large portion of the water and mixed. If a precipitate is formed it is then easily diffused by shaking. Example:—

Extract of Rhatany	20.0
Alum	10.0
Infusion of Sage	200.0
Purified Honey	50.0

For a gargle.

The honey should be first dissolved in the infusion, and the extract dissolved in one-half and the alum in the other half of the fluid.

[To these excellent remarks of Dr. Hager we think three others might well be added, namely:—First, that where either syrup, glycerin, honey, or mucilage is ordered along with fluids which decompose each other or which produce unsightly combinations, it is highly probable the prescriber has foreseen and anticipated this result, and has added this particular ingredient to avoid or mitigate the evil. Glycerin has in many cases a powerful influence in preventing decompositions as well as in preventing depositions, syrup less so, while honey and mucilage are favorable to fine division and suspension of insoluble salts and organic matter. The second remark (and this applies to the resinous solutions and extracts below) is, that where any decomposition takes place producing unsightly mixtures, or where a homogeneous mixture generally is desired, a much better result will be obtained by using the mortar and pestle, as in the production of an emulsion, than by agitating the ingredients in a bottle. The last remark is, that in no case should liberties be permitted in the shape of additions to or subtractions from prescriptions, with a view to producing what is called elegant pharmacy. Cases where such expedients are necessary are very rare, and even in these the error is generally obviously due to the neglect or oversight of the prescriber, and is so apparent that the dispenser cannot possibly have any difficulty in the matter.—*Ed. Chem. and Drug.*]

RESINOUS SOLUTIONS AND WATER.

When resinous solutions in alcohol have to be mixed with water, as is frequently the case, the combination is easy if syrup is also ordered. Syrups have the property of forming homogeneous mixtures with most of the alcoholic solutions of resins, and in some cases they yield clear mixtures. If no syrup is ordered the rule is to add the resinous tincture to water, as a more easily-suspended mixture is thereby obtained. In no case should the water or the aqueous vehicle be other than quite cold. A warm or hot fluid will cause the resinous particles to form lumps, which will either attach themselves to the sides of the bottle or float about in the mixture.

The alcoholic resinous tinctures occasionally ordered to be added to aqueous mixtures are the tinctures of amber, of benzoin, of castor, of Indian hemp, of colocynth, of cubebs, of guaiacum, of jalap, of hops, of nutmegs, and of myrrh. If, notwithstanding all precautions, the resin separates in unpleasant-looking particles, these must be collected on a previously damped strainer and rubbed down in a mortar with a little powdered gum arabic and a few drops of water. One mixture of an alcoholic solution of a resin with water may be mentioned as a useful cosmetic, making a perfectly suspended milky compound. It is known as *Lac Virginis*, and is composed of—

Tincture of Benzoin	10.0
Rose Water	150.0

A teaspoonful to be added to the water used for washing.

EXTRACTS IN MIXTURES.

When alcoholic extracts have to be dissolved in a mixture, the vehicle in which they are rubbed down into solution should not be hot.

Lactucarium ought to be rubbed down in a mortar with twice its weight of sugar and a few drops of spirits of wine.

If purely resinous extracts have to be compounded in a mixture they should first be rubbed in a mortar with twice or three times their weight of powdered gum arabic, then combined with the vehicle perfectly cold. If any syrup is ordered in the mixture the resinous extract should be rubbed down with that.

Muriate of Ammonia	5.0
Extract of Licorice	5.0
Distilled Water	100.0
Ethereal Ex. of Wormseed	1.5

The extract should be first rubbed with powdered gum arabic 1.5, and with the muriate of ammonia, then with the licorice in concentrated solution, and, lastly, with the cold water.

Extracts made with water and alcohol are difficult to mix with a purely spirituous solution.

Extract of Hyoscyamus	1.0
Tincture of Valerian	5.0
Ethereal Spirit	20.0

In this prescription, the ethereal spirit being only an adjuvant, a slight modification must be made. The extract must be dissolved in 2 parts of distilled water, then the tincture of valerian, and 18 (instead of 20) parts of spirit of ether added. In the case where the fluid with which the extract is to be mixed is itself a strong medicine (ethereal tincture of digitalis for example) nothing remains but to rub it with its own weight of water, and then rub the partial solution vigorously with the tincture.

Inspissated juices are similarly treated; but, when dissolved in water, they should stand in a measure for two or three minutes to settle, and the fluid poured off carefully from the sediment.

The narcotic non-resinous extracts can be kept in concentrated solutions. Ten parts of extract should be dissolved in a mixture of 12 parts of water, 4 parts of glycerin, and 4 parts of spirits of wine. When dispensing from these solutions, three times the quantity of extract ordered must be weighed. The label should indicate this exactly. Some extracts, such as aconite, henbane, and belladonna in solution, will require well shaking before weighing.

Refined licorice-juice can be kept in solution in its own weight of distilled water, or in a mixture of 3 parts of distilled water and 1 part of glycerin, in moderate-sized bottles quite full. Some acids and many salts of alkaloids can only be mixed with solution of licorice in very diluted condition, as they precipitate the glycyrrhizin and cause a very disagreeable appearance. Mixtures of quinine and licorice-juice will be treated of subsequently.

Extract of opium forms peculiar flakes with the mucilage of carragheen, althæa, and salep, but it can be mixed with them if first rubbed down with syrup, or dissolved in 50 times its weight of water. Acetate of lead is sometimes ordered in such a mixture, and this also should be dissolved in 50 times its weight of water before being added.

SALTS IN MIXTURES.

Some very soluble salts, such as acetate of potash, iodide of potassium, muriate of ammonia, etc., can be added direct to a mixture, either in powder or in the form of small crystals. Others more difficult of solution, such as sulphate of soda or magnesia, phosphate of soda or potash, tartrate of soda, etc., are more easily dissolved in hot liquids. When decoctions are ordered, the salts can be readily dissolved in them, but the dispenser must ascertain from a solubility table whether the quantity ordered is more than will remain dissolved in the cold solution, as in that case the salts will crystallize out. It is proper then to add the salt in fine powder to the cold mixture. This applies especially to cream of tartar and to sulphate of potash.

Borotartrate of potash (soluble cream of tartar) should always be added to the aqueous menstruum. If water is poured on this salt in a bottle its particles cleave together and form a thick mass, which can only be afterwards separated and dissolved with great difficulty.

Carbonate of ammonia must always be dissolved in cold water; and, besides, the mixture when completed should be allowed to stand in the uncorked bottle for half an hour or an hour to allow for the usual development and escape of carbonic acid gas. Acids with the carbonate of ammonia, of course, make the development of gas more rapid, as do also gum arabic or mucilage thereof. Such a mixtue should be warmed to about 25° C. (77° F.) before sending out.

Nitrate of silver in solution should be sent out in dark-glass bottles. It must always be dissolved in distilled water.

Nearly all salts dissolve to a greater extent in warm than in cold water. Burnt lime is an exception, and chloride of sodium is more soluble at freezing point than at ordinary temperature. Sometimes the temperature makes an appreciable difference in the solubility of salts in a mixture. For example, 100 parts of water will dissolve 35 to 40 parts of crystallized sulphate of soda in summer, while in cold winter nights water will not hold more than about 25 per cent in solution. The advice should be given, where necessary, to keep the mixture in a warm place.

Chloral hydrate should always be dissolved in cold water, warm water occasions a slight decomposition with formation of a little hydrochloric acid.

A solution of muriate of morphia, if made at a temperature above 40° C. (104° F.), will turn yellowish in contact with the air.

Many salts are more soluble if several are dissolved in the same vehicle, or if there is some acid present. Sulphate of potash, for instance, is more soluble in a solution of sulphate of magnesia than in pure water. In such cases double salts are formed, which are more soluble than the single ones, or a new and more soluble salt is formed. In the following mixture the acid makes the sulphate of magnesia dissolve in a smaller proportion of water than would otherwise be required.

Sulphate of magnesia.....	75.0
Dilute sulphuric acid.....	5.0
Distilled water.....	75.0
Syrup of raspberries.....	25.0

With sulphate of soda the case is similar.

[This mixture, without the raspberry syrup, corresponds very closely to what is known popularly in many districts as "Henry's solution of salts," and attention is directed to the fact of the greater solubility of the sulphate of magnesia in presence of free acid, as a probable explanation of the fact that this well-known preparation varies considerably in strength, a saturated solution in plain water being a very different thing to a saturated solution in water plus the free acid.—*Ed. Chem. and Drug.*]

When salts are to be dissolved in spirit of wine or in any alcoholic fluid, they should always be rubbed in a mortar. Chlorate and permanganate of potash should always be rubbed down in a mortar. [Care being taken that they are not rubbed with any organic or combustible substance.—Ed. A. D.]

When by mixing salts a precipitate is likely to be occasioned, these should be added to each other in as diluted a condition as possible, as the precipitate is thereby more finely divided.

Great care should be observed when salts of powerful alkaloids are ordered in mixtures with substances such as tannin or licorice, which are likely to precipitate them. If they cannot be dispensed so that the mixture is safe, the attention of the prescriber should be directed to the fact.

It is advisable where there is much dispensing to keep in ready solution such salts as will keep for some time in solution without decomposition. Such solutions should be prepared with very clean distilled water. Among these may be named the following:

Muriate of ammonia,	1 p. to 4 of w.
Nit. of potash...	1 p. to 4 of w.
Sulph. of magnesia,	1 p. to 2 of w.
Sulph. of soda..	1 p. to 4 of w.
Brom. of potass.	1 p. to 2 of w.
Acetate of " .	1 p. to 2 of w.

These solutions should be prepared with great exactness and filtered. They must be labelled to show how much is to be used in proportion to the quantity ordered. Except to a moderate extent, such solutions cannot be used when an aromatic water is ordered as the menstruum.

[In most pharmacies, we presume, solutions of the more common salts will always be kept ready for dispensing purposes. Such a practice is not only convenient for dispensing, but it admits also of much more elegant and permanent results. For example, there are few salts which, when converted into solution, are not the better for being filtered. No matter how clear or bright their solutions may appear at first, they will both look better and keep better if filtered. This is probably owing to the fact that crystallization is favored by the presence of minute impurities, which form nuclei round which the crystals form. Many of these nuclei or impurities are doubtless kept back by filtration, and consequently the solution is brighter and keeps better. In English pharmacies, with our system of measuring liquids, the solution should be made to contain, and of course should be so labelled, 1 part in 2, or 1 part in 4, or 1 part in 8, as the case may be. That is to say, 1 part of the salt is taken by weight, and water added to make 2 or 4 or 8 parts by measure. This will be found to facilitate calculation. One ounce of sulphate of magnesia, for example, will dissolve in 1 oz. of water. This is 1 part to 1 of water, but the finished product gives only about 1 part of the salt in 1.33 of solution. Now, let any one try to measure out of this solution 1½ or 2½ drachms of sulphate of magnesia, and the difficulty is at once apparent. On the other hand, if the solution is made 1 *in* 2 no calculation is required, as double the quantity of solution to the salt ordered involves no mental effort.—*Ed. Chem. and Drug.*]

In some pharmacies tartrate of potash and iodide of potassium are kept in solution dissolved in their own weight of water. But such solutions do not keep well. If they are employed, only so much should be made as will keep for eight or ten days in a dark place, and only dispensed if they are quite clear and colorless. Potassio-tartrate of antimony (1 in 49 parts of water) is also sometimes kept in solution, but this too spoils in a short time. It keeps much better with an addition of 20 per cent of glycerin.

[In many instances concentrated solutions keep much better than weaker solutions. Quinine and iron citrate is a notable example, a solution of 1 part in 2 keeping for weeks, while a weaker solution quickly gets bad.—*Ed. Chem. and Drug.*]

Sulphate of quinine (5 parts dissolved in 90 parts of distilled water with 5 parts of diluted sulphuric acid) is sometimes kept in solution. This, however, appears to deteriorate by keeping, the flakes which occur being formed at the expense of the quinine. Strictly speaking, when no acid is ordered in a prescription to dissolve the quinine, the latter should be rubbed down with the water; but it has become the custom in such cases to add to the sulphate an equal quantity of dilute sulphuric acid to effect solution unless instructions to the contrary are added. When licorice juice is to be combined with quinine, the former should be first dissolved in ten times its weight of water and the solution of quinine added, as both the alkaloid and the acid tend to decompose the licorice. If the vehicle does not admit of this solution, the quinine, with a little acid (preferably hydrochloric), must be rubbed down in a mortar with the licorice and the vehicle added little by little.

Iodine dissolves but slightly in water, but iodide of potassium will make three-fourths of its own weight soluble.

Ammonia salts also increase its solubility. If neither of these are in the mixture, the iodine should be triturated with twice its weight of sugar, which helps to suspend it. Oils of peppermint and fennel, and some other volatile oils, combine chemically with iodine.

Sugar dissolves easily in water, but does not immediately yield a clear solution. In its place simple syrup, in the proper proportion, may be used.

Manna can be dissolved in water by the aid of heat. It should be cleared by decantation and straining.

Gum arabic is best used in the form of mucilage, in proper proportion. Care should be taken not to employ gum Senegal in its place, as the latter has an unpleasant taste and smell, and acts chemically with metallic salts.

[Care should be taken that the mucilage is fresh. It quickly sours, and we have seen curious and often puzzling complications from this cause.—*Ed. Chem. and Drug.*]

Tannic acid will easily dissolve in pure water, yielding a solution with a light-yellow shade. The water must be quite free from ammonia, or the solution gradually darkens to a brownish tint. With traces of iron it turns inky, and alkaline substances also turn it thick and brown to black. With mucilages of carragheen, salep, althæa, etc., it forms flaky conglomerates, and should only be mixed with

them after dilution with twenty times its weight of water.

Chloral hydrate cannot be kept long in watery solution, as it decomposes and becomes acid. If required to be filtered, a solution of chloral should be strained through spun glass.

Jequirity and its Active Principle.*

ACCORDING to a note in the *British Medical Journal* (March 8th, p. 476), Dr. E. Klein has recently investigated the bacillus of jequirity, and finds that the bacillus is, of itself, quite incapable of producing ophthalmia, and further, that the pus from a case of ophthalmia contained no trace of the bacillus. He found also that the infusion of jequirity could be rendered incapable of producing ophthalmia by boiling for a time, insufficient to destroy the bacilli, and that the bacilli, when cultivated in peptone solution or jequirity infusion previously sterilized by boiling for half an hour, possessed no power of producing ophthalmia. The active principle of the jequirity appears, therefore, to resemble, to some extent, in its vital properties, the pepsin ferment, in that it is easily destroyed by heat. This statement is confirmed Mr. Arthur Benson, in a subsequent number of the same journal (p. 564), in which it is stated that he has found that ophthalmia could be produced by the freshly powdered seeds, by the freshly made infusion, by the infusion after bacilli had appeared in it, by the infusion six weeks' old, swarming with various micro-organisms, and by the infusion after the bacilli had ceased all motion and had sunk to the bottom of the liquid apparently dead. He had examined, at all stages of the disease, the discharges and membranes from eyes affected with jequirity ophthalmia without ever seeing the typical bacillus. A one in ten thousand solution of corrosive sublimate prevented bacilli from forming, but did not destroy the power of the infusion to produce ophthalmia.—*Pharm. Journ.*

From another source (*The Weekly Medical Review*, April 5th), we learn that the same question has been investigated by Dr. Neisser, of Breslau, who arrived at the same results. And further, Dr. C. J. Salomonsen and M. Dirckinck-Holmfeld, of Copenhagen, who likewise examined the question, not only coincide with the above-named observes, but they have succeeded, at least partly, in isolating the active principle.

They found that the active principle was insoluble in alcohol, chloroform, benzoin and ether; that it was comparatively slightly soluble in water, but very soluble in glycerin.

They were unable to extract any alkaloid, and expected the presence of an amorphous ferment. To establish this point, the jequirity seeds having been ground up, the powder was treated with 10 times its weight of pure glycerin, rubbed up well, and allowed to stand for twenty-four hours, filtered and then precipated with 5 times its volume of alcohol. This precipitate was again treated with the necessary means for purification, and the result, dissolved in both water and glycerin, gave the characteristic jequirity inflammation.

The smallness of the amount of the active principle necessary to produce the inflammation is very striking. The glycerin solution which corresponded to the one-hundred-thousandth part of a gramme [of the seed], developed the characteristic inflammation, but one-half of this quantity produced no effect.

The results may, therefore, be summed up as follows:

1. The jequirity inflammation is *not* the result of bacteria.

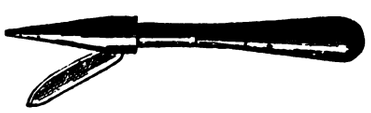
2. It is the result of an active principle in the seed, soluble in both water and glycerin, but insoluble in alcohol, chloroform, ether and benzin; and destroyed by a temperature between 65° and 70° C., if kept up for one hour.

3. The quantity of active principle contained in the $\frac{1}{100000}$ gramme of jequirity seed develops a well-marked conjunctivitis. The poison, when injected hypodermically in mice or frogs, quickly kills.

* Compare NEW REMEDIES, 1883, June. See also below, page 105.

A NEW PAN-MILL.

FELLOWS & BATES (Limited), of Manchester, England, are the makers of a new pan-mill suitable for mixing ointments, pastes, putty, etc., and for grinding chalk, whiting, chrome, etc. The adjoining figure shows its general arrangement, and it will be noticed that the pan, as well as the grinding cylinder, revolves. The pressure with which the pan and roller come in contact is regulated by the three springs at the base of the sleeve which supports the pan. The price of the mill adapted for hand power only is £1 18.0.



SHARPENING CORK-BORERS.

A HANDY tool for sharpening cork-borers has been devised by Julius Schober of Berlin. It consists of a brass cone fastened into a wooden handle. The cone is split into two halves by a slit of a few millimetres in width, inside of which is a steel-blade hinged below. The cork borer having been placed over the cone, while the steel blade is in the position shown by the cut, a gentle pressure is exerted upon the blade and the cork-borer (or the sharpening tool) revolved whereby the edge of the borer will become sharp.—*Chem. Centralbl.*, 1884, No. 1.

Peroxide of Hydrogen as an Antiseptic.

PEROXIDE of hydrogen is recommended in the March number of the *Practitioner* (p. 197) as a local antiseptic and astringent. The advantages which are claimed for it are that, besides being a powerful antiseptic, it is colorless, odorless, cleansing and stimulating, does not stain or corrode, destroys pus, causes no pain in its application, and is not poisonous. In purulent ophthalmia, otorrhœa, gonorrhœa, leucorrhœa, ozæna, and stomatitis it has been found useful, and in all forms of ulcer, especially if of syphilitic origin, it exerts a healing effect. Dr. Shelly points out that if a few drops of the ordinary 10-percent solution be brought in contact with pus, a brisk effervescence at once commences and continues until all the pus is completely destroyed, and a stimulant action on the wound takes place, followed by healthy repair. He suggests its use as a topical application in membranous diphtheria.—*Pharm. Journ.*, March 20th.

Criticisms from a Chemical Point of View on Some Favorite Prescriptions.*

BY HENRY LEFFMANN, M.D.

THE few points that I present to the College this evening will include little that is absolutely new, but I think the time will not be entirely wasted, as I know that the prescription list of most of our drug stores will give numerous examples of the violation of chemical principles here mentioned. My attention was called to this topic by my being shown by an apothecary a prescription calling for

Syr. hypophosph.,
Tinct. ferri chlor.,
Acid. phosph. dil.,

concerning which he said that, in the proportions ordered, he could never make the mixture up clear. I examined the precipitate, and found in it, as I had expected, a large proportion of the iron and other basic ingredients. This is a simple case of incompatibility. Turning the matter over in my mind, it has seemed to me that, while some attention is paid to cautioning students as to the general nature of incompatibility, very little or none is given, especially in the shallow chemical teaching of many medical schools, to the properties and qualities of chemical substances in their relations to the animal tissues, and the manner of administration. I present here, therefore, a brief consideration of a few well-known remedies.

Under the name of *colorless tincture of iodine*, several preparations are used, depending for their popularity on the fact that they do not stain the skin. They are prepared either by the use of ammonia, or of sodium sulphite, or hyposulphite. They owe their particular property, or rather absence of property, to the neutralization of the iodine, and just to the extent that the iodine is decolorized is it to the same extent deprived of virtue. The free active affinity of the iodine, to which its local action must be due, is destroyed in these preparations, and the destruction is not slow or uncertain, but, in two of the methods mentioned, it is sufficiently rapid and definite to be made the basis of a method of quantitative analysis. It is certainly difficult to see how any person could go so wide of simple chemical principles as to invent or employ this mixture.

Potassium chlorate, or as it is still erroneously called by many, chlorate of potash, is a remedy concerning which extraordinary claims have been made, based upon most erroneous notions of its chemical qualities. It is employed in the laboratory as a source of oxygen; knowledge of this fact has led to its employment as an oxidizing agent in diseases which have been supposed to express deficient oxidation. I have nothing to say here as to the clinical results obtained from potassium chlorate in any disease—although it is much less in favor than formerly—but I enter a protest against any advocacy of its usefulness as an oxidizing agent. Under temperatures and conditions, such as that which it meets in the human system, it is one of the most stable of bodies, does not part with its oxygen or chlorine, and, indeed, will not begin to do so except under very high heat. I have found by actual experiment that ten grains of the salt kept for two hours at a temperature of 100° Fahr., in contact with an artificial gastric juice, did not develop oxidizing qualities sufficient to oxidize one-sixtieth of a grain of phosphorus. This experiment is merely confirmatory of what every-day experience with the substance teaches.

Potassium permanganate has been more or less in favor with physicians

* Read before the College of Physicians of Philadelphia, April 2d, 1884.

for a score of years. It is well known as an oxidizing agent; its powers in this respect are well marked. It is as little suitable for internal administration for such purpose as the body just considered, but for an opposite reason. Its chemical properties are developed by almost every substance, and in the doses in which it is given, it will be decomposed and rendered inert very shortly after being swallowed. Within a very recent period the salt has come into notice as a remedy for amenorrhœa, and great has been the tribulation of apothecaries. It has been given in pill form, and all the usual excipients have been unavailable. I have made a few tests of the permanganate pills now in the market, and I find in regard to those made by one of the most reliable houses in this city that the permanganate is all decomposed and converted into the insoluble manganese dioxide. The preparations of two other manufacturers made up with some mineral excipient, probably kaolin, were in good condition, but as soon as placed in a mixture of hydrochloric acid and pepsin, they begin to decompose into insoluble manganese oxide. These pills vary in strength from one-eighth to one grain. This small quantity of permanganate certainly must soon decompose in the stomach, and the only virtue which it can have is from the manganese itself, and if this is effective, common sense would seem to suggest that the result could be best obtained by exhibiting some definite compound of manganese, such as the chloride or sulphate. When we consider the chemical relations of the salt and almost certain inertness of it in small doses, the gravity with which the learned English therapeutists, who recommended it in amenorrhœa, have discussed the possibility of its producing abortion, becomes almost burlesque.

I do not desire, of course, to impugn the clinical observations that have been recorded on this point, but I feel obliged to say that, if the insoluble and variable decomposition products of one eighth of a grain of potassium permanganate can affect the function of any one organ, then the difference between us and the apostles of the infinitesimal is small indeed.

I cannot dismiss these two compounds, which owe their popularity to mistaken notions of their properties, without saying a word or two as to the exhibition of oxidizing agents. If rational therapeutics or physiological study indicates remedies of the so-called oxidizing class, then it will be found that no better agents are known to us than those which have long been in our hands. In nitric acid, nitromuriatic acid, and chlorinated soda, we have substances which are sufficiently stable to resist the organic bodies of the saliva and gastric juice, and are sufficiently active to give oxidizing effects if such can be obtained other than local action. I have grave doubts whether the nutritious fluids of the body can be oxidized by any method, but there can be no doubt whatever that such effect cannot be obtained by either a body—potassium chlorate—which yields its oxygen only at a red heat, nor by one—permanganate—that decomposes the moment it touches any form of organic matter. Some years since a correspondent in one of our medical journals gravely recommended the use of raspberry syrup to disguise the taste of potassium permanganate. It was, of course, entirely successful, the taste was destroyed, so was the compound.

Caffeine citrate is a remedy much in favor, and is a remarkable instance of how much physicians take for granted in the remedies they use. There is no caffeine citrate in the market, and it is doubtful whether any such salt can be prepared. The commercial preparations are either pure caffeine or variable mixtures of it with citric acid.

The manufacturers in this city each furnish a different article, except in cases in which they buy from a common source; and a house in a neighboring city furnishes an article which contains no citric acid. Some of the samples are purely bitter in taste, while others are distinctly sour. Analysis of some of the commercial salts are recorded in a paper read before the last meeting of the American Pharmaceutical Association by Dr. G. C. Wheeler. He found the quantities of caffeine varied from 96.5 per cent to 63.5 per cent; of citric acid, from 63.5 to 3.5 per cent; none of these figures correspond with the proportion of a true citrate.

It seems to me that accurate clinical observation cannot be made with a preparation of so uncertain a character; for, as seen by these figures, the proportion of active ingredients may vary thirty-three per cent, and the lesson that these analyses teach us is that, when the effects of caffeine are wanted, they are best obtained by the use of the pure alkaloid, and not by a pretended and uncertain compound of it.—*Maryland Med. Journ.*

On False Japanese Isinglass.

THE following is taken from Prof. Dymock's work: "The Vegetable Materia Medica of Western India:"

ALGÆ.

Lawrencia papillosa, Grev., etc., }
Gelidium corneum, Lamour, }
The dried jelly (Gelose).

Vernacular.—Chinai-ghás (Bomb.).

History, Uses, etc.—This substance, called Yang-tsai by the Chinese and known in Europe as Mousse de Chine, and *Japanese Isinglass*, is a regular article of commerce in Bombay, where it is valued on account of its supposed strengthening properties. Hanbury, (*Pharm. Journ.* [ii.], vol. i., p. 508), gives the following account of it:—"Under the incorrect name of Japanese isinglass, there has been lately imported into London from Japan a quantity of a substance having the form of compressed, irregularly four-sided sticks, apparently composed of shrivelled, semi-transparent, yellowish-white membranes; they are eleven inches long, by from one to one-half inches broad, full of cavities. Very light (each weighing about three drachms), rather flexible but easily broken, and devoid of taste and smell. Treated with cold water, a stick increases greatly in volume, becoming a quadrangular, spongy bar with somewhat concave sides one and a half inches wide."

The term Chinai-ghas is loosely applied in Bombay to three substances, viz., Japanese isinglass, edible birds'-nests, and Ceylon moss (Gracilaria lichenoides and G. confervoides, Grev.).

Note.—This substance has attracted considerable attention in France. It was exhibited at the Paris Exhibition of 1878 under the name of *Thao*. The following particulars from the catalogue may prove interesting. Various trials have been made with it in France since 1874, especially by MM. D. Gantillon & Co., at Lyons, and the Industrial Society at Rouen. The thao is prepared for use in the following way:—After having been soaked in cold water for about twelve hours, it is boiled for a quarter of an hour, during which it absorbs about one hundred times its weight of water. If allowed to cool it becomes a jelly, but if passed through a sieve and stirred until cold, it remains fluid, and in this state is more easily employed than when hot. The yellowish matter which some specimens contain can be removed by boiling for some time, when it forms an insoluble scum, which appears to consist of very thin fibres, and which remain attached to the sides of the vessel.

A singular property, and one which perhaps might be turned to valuable account is, that thao jelly does not decompose solution of permanganate of potassium even when left in contact with it for twenty-four hours.

According to M. Heilmann, of Rouen, thao produces in the proportion of one part to one hundred of water, a dressing which is supple and strong, and which gives substance rather than stiffness to calico, while dextrin, like starch, makes the tissue drier and harder, and gives less facing to the thread. The addition of glycerin gives a dressing still more flexible and soft, and while rendering the tissues less stiff, it communicates more body to them.

The addition of talc gives still greater smoothness. Once dissolved, according to M. Gantillon, thao will mix while hot with any gum, starch, dextrin or gelatin. The principal advantage of thao in dressing silk fabrics is that while preserving their suppleness, it gives them greater glossiness and makes them soft to the touch. The mixture of thao with gum tragacanth is said to be the best method of using it. Thao should, however, be used alone for materials which it is not necessary should be stiffened. As thao is only soluble at a high temperature, a moist atmosphere, fog, or even rain, does not affect the material dressed with it. It combines well with sulphate of copper and the chlorides of aniline and potassium, and can be used in double dyeing. It also answers well for sizing paper, etc. The only obstacle to its extensive use is its high price. There is, however, no reason why a similar substance should not be made from our common native seaweeds, of which Gelidium carneum and Gracilaria confervoides approach most nearly in character the algæ from which thao is made. Gelose, of which thao consists, differs from the carragheenin obtained from Chondrus crispus in its power of combinining with a very large quantity of water to form a jelly; it yields ten times as much jelly as an equal weight of isinglass. For purposes of food, thao jelly is not quite so pleasant as animal jelly, as it does not melt in the mouth; it also contains no nitrogen. A great advantage which it possesses is, that it is but little prone to undergo change, so much so that the jelly is sometimes imported from Singapore, sweetened, flavored, and ready for use, and may in this state be kept for years without deterioration. The west coast of Australia also yields a seaweed possessing similar properties.

New Process of preparing Barium Permanganate.

ACCORDING to G. Rousseau and B. Bruneau, 300 C.c. of hydrofluosilicic acid of 30° B. are added to a cold saturated solution of potassium permanganate (100 Gms. in 1,500 to 1,600 Gms. water). The mixture is allowed to stand for some time, then filtered through asbestos, and then neutralized by milk of baryta in quantity sufficient to about neutralize the amount of hydrofluosilicic acid originally used. Barium carbonate will not serve here, as it will precipitate the whole of the manganese as hydrated peroxide. The solution is allowed to settle, decanted and evaporated. By redissolving and again evaporating, a pure product is obtained.—*Bul. Soc. Chim.* and *Journ. Am. Ch. Soc.*

[Barium permanganate may be used as a starting point to prepare the permanganates of other bases which have a soluble sulphate.—ED. A. D.]

Eucalyptus Oil and Eucalyptol.

THE demand for eucalyptus oil and eucalyptol based on the reputation of the products obtained from the leaves of Eucalyptus globulus, has brought into commerce oils obtained from other species which are said not to possess the same medicinal properties. However this may be, as there is a difference in their money value, it may be useful to quote from Messrs. E. Merck's circular the characters in which an oil that appears to be known in the the German market as "Oleum Eucalypti australe" differs from the genuine product from E. globulus leaves. The genuine oil has a weak dextrorotatory action, forms a clear solution in 90 per cent alcohol in all proportions, does not puff when treated with iodine, turns yellowish in contact with sodium, and has a specific gravity of from 0.900 to 0.925, according as it is distilled from old or fresh leaves. The "australe" oil is strongly lævo-rotatory, only slightly soluble in 90 per cent alcohol, puffs with iodine, is colored red on standing with sodium, and has a specific gravity not higher than 0.860 to 0.870. The characters for E. globulus oil answer far eucalyptol. The "eucalyptol puriss." has a boiling point between 170° and 173° C., a specific gravity of 0.910 to 0.920 at 15° C., and is as clear as water.—*Pharm. Journ.*, March 20th.

Tapioca.

ALL pharmacists are familiar with the appearance and large granular masses of tapioca. The late Dr. Seeman was of opinion that its peculiar lumpy form was due to the action of a peculiar kind of wood used in the preparation of the starch. Mr. James Collins, to whom this was mentioned, thought the explanation rather unlikely, and believed the agglomeration and alteration was owing to the starch being partially changed into dextrin. While in the East, he tried to clear up the matter, and at first with little success. He witnessed part of the process of preparing gambier and sago. In both cases, wooden and iron stirrers were employed; the first were of different kinds, no particular preference being given to any one sort, and the latter were most esteemed.

In Malacca, he saw the whole process relating to tapioca, from the fresh root to the finished product, as packed for market. Arriving at the manufactory, there were driving bands above the visitors' heads, streams of water flowing in every direction, glowing fires, and a hive of very scantily-clad Chinese. Droves of these coolies came from the fields, with baskets slung on poles filled with fresh root-stocks. These were washed in tubs in a constant stream of water, and then peeled like turnips. Next, they were sliced in one machine and pulped in another. The pulp was removed in cane baskets to strainers, large wooden frames, with calico bottoms. Above these, tanks giving off a powerful stream of water impinged upon the pulp, a sifting motion being communicated to the strainer. As the starch became washed out, it was received into inclined troughs, and, whilst in a state of suspension run into settling-vats.

There it was stirred and washed, and, while moist, it was removed to the drying-room.

Two kinds of tapioca are prepared. The flour is made by heating slightly by fires placed underneath; it is constantly stirred, and turned over with iron shovels, to prevent agglutination, and insure equal drying.

Granular tapioca is made as follows: A long range of quallies, or small iron shallow pans, are slightly tilted forward on ledges of brickwork, and heated with a wood fire. Each operator has a quallie and fire to himself. Taking a quantity of damp starch, he stirs it round and round with an iron shovel, and the heat is sufficient to cause the tapioca to become agglutinated together in small masses, and coated with dextrin. This was done with great skill, and with an open fire. On further inquiry, Mr. Collins found that wooden stirrers were never used but from motives of economy when iron could not be afforded.—*Chem. and Drugg.*

Fraudulent Cubebs.

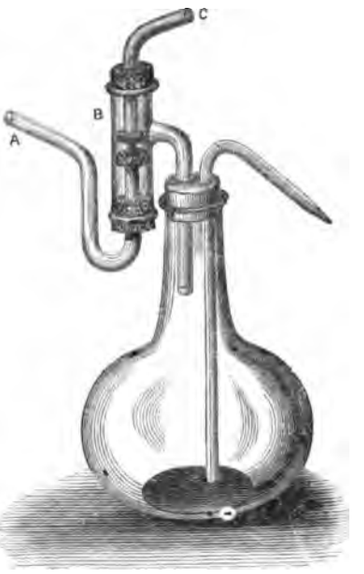
In a parcel of nineteen bags of cubebs consigned to Messrs. J. Domerque & Co., of New York, five were found to contain genuine cubebs mixed with other berries, while fourteen bags were wholly composed of false berries. These were seized by the Government, and henceforth a close inspection of cubebs, when imported, will be the result.

Commercial Treatment of Balsam of Peru.

WHEN balsam of Peru arrives at Acajutla and La Libertad, the ports on the "balsam coasts," from which it is chiefly shipped, it is in a crude state, usually of a gray green to a dirty yellow color, and requires to be submitted to a process of purification before it is fit for exportation. Concerning this process a correspondent of Messrs. Gehe & Co. furnishes some interesting information. He states that a first clarification is effected by allowing the crude balsam to stand in a large iron vessel capable of holding six or seven hundred pounds during a week or a fortnight, by which time the heavier impurities sink to the bottom and the lighter ones float as a scum on the surface. The clear balsam, which has already attained its characteristic black-brown color, is then drawn off through a tap fixed about four inches from the bottom of the vessel and run into a tinned iron boiler set over an open fire and boiled moderately for two or three hours. All scum is removed as it makes its appearance, and the boiling is continued as long as any continues to be formed. It can easily be understood that the physical properties of the balsam will differ according to the temperature to which it is submitted during this boiling, and it is alleged that the lower specific gravity observed in balsam of Peru during recent years is attributable to a modification it undergoes in this operation, and is quite consistent with the genuineness of a given sample.—*Pharm. Jour.*

Use of the Oleates.

THE marked success that has attended the use of the oleates has induced Dr. Shoemaker to experiment with fresh compounds, and he reports (*Med. Bulletin*, vi., 38), that he has obtained valuable results from the use of the oleates of nickel and tin. The nickel oleate is prepared by the double decomposition of nickel sulphate and sodium oleate. It is described as a green, amorphous, waxy, tasteless substance, having a most decided astringent action, almost bordering upon the effect of a caustic. In cases of chronic eczema of the extremities, where the skin was hard and leathery, it is said to have given good results, and it is now being tested upon old ulcers and cancerous affections of the skin. An ointment is used of the strength of fifteen grains of the oleate to one ounce of lard. The tin oleate, as prepared by the double decomposition of tin chloride and sodium oleate, is grayish-yellow, of an unguent consistence and has a marked metallic taste. It has been found of great utility in giving lustre to diseased nails that have become abnormal or deficient in growth, and to assist by its local action in overcoming split and soft conditions of nails that often follow certain skin affections and external injuries. Combined with a little carmine, it is said to form an elegant toilet article, imparting a beautiful polish to the nails and by its astringent action modifying the ragged and attenuated state of the skin at their base which gives to the troublesome affection of "agnails."—*Med. Bulletin* and *Pharm. Journ.*



HOT-WATER WASH-BOTTLE.

FOR the purpose of avoiding the injurious action of steam accidentally projected into the mouth by careless handling of the hot-water wash-bottle, Ost has devised the attachment here illustrated. Air is blown into the flask through the U-shaped tube *A*, the inner end of which is provided with a flat glass shoulder. Through the stopper in the upper tubulure of the tube *B* passes a curved glass tube held in a central position by a shoulder blown on to its inner end. Inside of this tube another narrower one is placed, which slides up or down without friction, but which closes, while down, the inner orifice of the blowing tube.

When air is blown in the apparatus, the loose piston is driven upwards, and the air finds its way into the flask. As soon as the blowing is interrupted, the piston falls back again and closes the orifice of the blowing tube, preventing thereby the passage of steam or hot water into the mouth of the operator. Any confined steam will find its exit through the aperture at *C*.—*Chemiker Zeit.*

The Active Principle of Jequirity (Abrus Precatorius).

(Compare article on page 108.)

WHEN jequirity was first introduced in ophthalmic practice, it was supposed that it contained some active principle which caused the peculiar action upon the conjunctiva and the mucous membrane of the eye. Not long afterwards, however, the presence of an active principle was denied, and its action was ascribed to peculiar bacteria existing in the infusion and apparently pre-existing in the seeds. Though this theory seemed, on its face, rather improbable, it nevertheless was supported by what seemed almost conclusive proofs. Lately, however, the fallacy of this supposition has been demonstrated, but no special active principle has thus far been discovered.

That there must be some such substance present is proved by some re-

markable results obtained with the dialysate of jequirity, prepared by McIntyre and Embury of New York (99 North Moore street). This is prepared by dialysis from the seed and forms one of the series of these well-known preparations which are made so as to represent one part of the drug in two parts of the product.

In the Manhattan Eye and Ear Hospital the dialysate was diluted with five times its bulk of water—the solution therefore representing one part of the drug in about ten parts of liquid—before being used, and it has acted very satisfactorily.

The dialysis had been performed by means of parchment paper, the dialysate standardized and mixed with a sufficient amount of glycerin to make a product of the strength stated above.

In one case a marked effect was obtained with a dilution of one part of the dialysate with nine parts of water.

This appears to be a positive proof that the active principle is alkaloidal.

Test for Tartaric in Citric Acid.

In a former number we gave an abstract of a paper by Athenstädt on an improved method for discovering the presence of one or more per cent of tartaric in citric acid.

The test prescribed by the German pharmacopœia is as follows:

"On adding an alcoholic solution of acetate of potassium to an aqueous solution of the acid (1 in 3), no white crystalline precipitate should be produced."

This test has been criticised as not being quite sharp enough, since neither the strength nor the quantity of the solution of acetate of potassium is mentioned.

Mr. Th. Push now states that Mr. Athenstädt's method is likewise unreliable, since the addition of the solution of citric acid, *entirely* free from tartaric, if performed as directed by the author—namely by dropping it into lime-water—produces the same kind of opalescence as if one per cent or thereabouts of citric acid had been present. Push states himself that this is a remarkable occurrence, apparently showing that citrate of calcium may separate already in the cold.

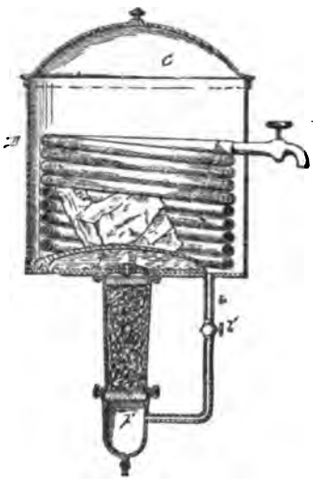
He proposes, as an amendment, the following method: Pour 10 Gm. of pure, colorless, concentrated sulphuric acid upon 1 Gm. of powdered citric acid, in a test-tube. Hang the latter into a beaker glass containing water, and heat the latter, for one hour, to boiling. The acid dissolves, with evolution of gas and foam to a citron-yellow liquid, and, if it was pure, does not alter this color inside of the hour. But if it contained only as much as one-half per cent of tartaric acid, the citron-yellow liquid will become gradually brownish after 25 to 30 minutes, and reddish-brown after one hour. Of course, the crystals selected for this purpose must be absolutely free from organic foreign substances, (paper, etc.), such as are often accidentally mixed with it. The author thinks that even a smaller quantity of tartaric acid will be indicated by this test. It is best to treat at the same time another sample of citric acid of known purity, so as to afford a means of comparison.

This test suggested itself to the author from a passage found in Schmidt's "Lehrbuch d. Pharm. Chem." He found it mentioned nowhere else.—*Arch. d. Pharm.*

Note by Ed. A. D.—The corresponding test of the U. S. Pharm. of 1880 is the following:

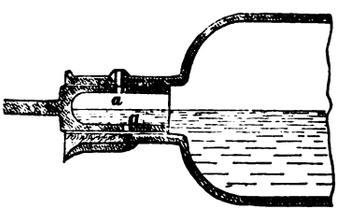
"If 1 Gm. of citric acid be dissolved in 10 C.c. of a cold-saturated solution of bichromate of potassium, no darkening of the liquid should be observed within five minutes (absence of one per cent or more of tartaric acid)."

According to our experience, this test is sufficiently accurate. But even here it is advisable to have a pure sample of citric acid for comparison.



COMBINED WATER FILTER AND COOLER.

Mr. Frank E. Cady, of Auburn, N. Y., is the inventor of a combined water filter and cooler which is illustrated, in section, in the adjoining figure. The water, being placed in the reservoir, passes by means of the small tube *b* into the small chamber F, at the bottom of the filtering chamber. From thence it rises through the filtering materials and finally is discharged through the coiled tube placed in the reservoir, and may be drawn off by the faucet at the side of the reservoir. The ice is placed within the coil of pipe and thus serves to cool the water both before and after it is filtered. The faucet *b'* is to be used for stopping the flow of water towards the filter, and a small petcock at the bottom of the chamber F is for the escape of sediment.



DROP-COUNTER.

Hermann Lamprecht and Georg Hirdes have patented (Germ. Pat. 24,116), the drop-counter here illustrated.

It has a hollow stopper, provided with a small aperture at the side which corresponds to a similar aperture in the neck of the bottle, the object of which is to admit air. Along the opposite side of the stopper a narrow channel is ground, by which the liquid finds its exit.

Improvement in the Manufacture of Liquid Paraffin.

The German pharmacopœia directs paraffin ointment to be prepared from a mixture of solid and liquid paraffins. When the pharmacopœia appeared, no commercial sample of either paraffin was found which would bear the official tests, but shortly afterwards this defect was removed.

Owing, however, to the want of homogeneity of the mixture caused by the partial separation of the liquid and solid portion, many physicians and pharmacists of Germany preferred the American product (vaseline, etc.).

L. Meyer, of Frankfort-on-the-Main, now announces that he has succeeded in producing a *viscid* paraffin, clear as water, of good body, and free from all crystallizable paraffin, of the spec. gr. 0.885, and absolutely odorless and tasteless. This latter property appears specially valuable, since most or all previously produced paraffin oils possessed a more or less pregnant twang recalling that of cork or cedar-wood [?].

In order to render this paraffin oil of about the consistence of vaseline, it needs the admixture of only about 8 per cent of paraffin, while the liquid paraffins heretofore produced required 25 or 30 per cent.

Danger of badly vulcanized Rubber Tubing.

Limousin warns against using badly vulcanized rubber tubing, especially when preparing oxygen gas, since several explosions from this cause have recently occurred, which are no doubt owing to the free sulphur adhering to the inner wall of the rubber tubing. The proportion of sulphur in the latter is very commonly increased beyond the normal quantity by unscrupulous manufactures. The author has often found tubing which contained 0.6 Gm. of loose sulphur adhering to the interior of a length weighing only 2.3 Gm.—*Journ. de Pharm.*

Synthesis of Piperidine.

Professor Ladenburg announces that he has succeeded in forming piperidine (the decomposition product of piperin) artificially, starting from picoline (derived from animal oils). There are quite a series of different piperidine-compounds possible, depending upon the compound radical (methyl, ethyl, etc.) contained in them. From each of them, however, the base (piperidine) may easily be separated.

One of the ethyl-piperidines has an odor very much resembling that of coniine and piperidine, and Professor Ladenburg thinks that he is on the road of finding the actual constitution of coniine. He promises interesting results from his current investigation of the propyl-piperidines.—*Ber. d. Deutsch. Chem. Ges.*, 1884, 388.

Preparation of Crystallized Sulphuric Acid.

Monohydrated, or crystallized sulphuric acid may be prepared from any sulphuric acid of 66° B. or over, by cooling it to 0° C. (32° F.), introducing a few crystals of monohydrated acid and continuing the cooling until crystallization ensues. The crystals are separated from the mother liquid by draining or pressing, or centrifugal machines, etc. In order to obtain perfectly pure crystals, the first crop is allowed to melt, again cooled, and the new crop of crystals separated as before. This treatment is repeated as often as necessary.—*Germ. Pat.* No. 24,403.

Selections from the New York and Brooklyn Formulary.

66. SPIRITUS AROMATICUS.

Aromatic Spirit.

I.

Orange Peel, fresh and deprived of the inner, white portion	8 av. oz.
Lemon Peel, fresh	2 " "
Coriander, bruised	2 " "
Oil of Staranise	16 min.
Deodorized Alcohol, enough to make	16 fl. oz.

Macerate the solids during four days with *one* (1) *gallon* of Deodorized Alcohol, then add the Oil of Staranise, filter, and pass enough Deodorized Alcohol through the filter to make the product measure *one* (1) *gallon.*

II.

Aromatic Spirit may also be prepared as follows.

Compound Spirit of Orange (No. 67)..... 8 fl. oz.
Deodorized Alcohol, enough to make..... 1 gallon.
Mix them.

Note.—Whenever practicable, the first of the above-mentioned formulæ should be followed. When the quantity of Aromatic Spirit to be prepared at one time is so large that it becomes inconvenient to separate the peel from fresh oranges and lemons, the second formula may be substituted.

67. SPIRITUS AURANTII COMPOSITUS.

Compound Spirit of Orange.

Oil of Bitter Orange Peel.. 4 fl. oz.
Oil of Lemon..... 1 fl. oz.
Oil of Coriander..... 160 min.
Oil of Staranise..... 40 min.
Deodorized Alcohol, enough to make..... 20 fl. oz.
Mix them.

One (1) *fluidounce* of this solution and *fifteen* (15) *fluidounces* of Deodorized Alcohol make *one* (1) *pint* of Aromatic Spirit (II.).

Note. Both the Oil of Orange and the Oil of Lemon must be absolutely free from terebinthinate odor and taste. Both oils should be procured only from the most reliable source and, as soon as received, diluted with a definite quantity of Deodorized Alcohol, which will retard deterioration. Neither oil should be kept in stock for any length of time, or should at least be kept in bottles completely filled, and in a dark place. The same precautions ought to be observed with the alcoholic solutions. If Oil of Curaçao Orange can be obtained, it is advisable to use this, in place of ordinary Oil of Orange, as it imparts to the Spirit a much finer flavor than the latter.

46. ELIXIR SIMPLEX.

Simple Elixir.

Aromatic Spirit (No. 66).. 16 fl. oz.
Syrup..... 24 "
Water..... 24 "
Phosphate of Calcium.... 1 av. oz.

Mix the liquids, adding the water last; then mix thoroughly with the Phosphate of Calcium, and filter through a well-wetted filter, returning the first portions of the filtrate until it runs through clear.

Note. The spec. gr. of Simple Elixir is 1.100.

Comments by Ed. A. D.

We have already in a preceding number (p. 63) drawn attention to the fact that the officinal process for preparing Simple Elixir does not yield a satisfactory product, owing to the liability of the Oil of Orange to deteriorate during its exposure to the air, while being incorporated into the cotton. The process should be modified so as to mix the Oil, while still fresh, with the Alcohol, and then to add the other ingredients.

It has been stated that Simple Elixir prepared by adding other flavoring materials to Oil of Orange, or to a mixture of Orange and Lemon, is not unfrequently disliked by patients. This may be the case when these flavors become prominent. But when they are so well blended that they merely modify the chief flavor without betraying their own individual presence, the case is different. On the whole, we doubt whether a more pleasant Simple Elixir has ever been offered than that prepared by the formula (No. 46), provided care is taken in its preparation.

The preface to the Formulary gives some useful hints in regard to the filtration of Simple Elixir or other viscid liquids. It says:

"In filtering many of the preparations quoted in this pamphlet, some difficulty will be encountered, owing to the density or viscidity of the liquid. Some liquids will slowly deposit a sediment; in the case of these, it will be found that filtration proceeds much more easily after they have been allowed to stand for some time. If they are required sooner, and filtration is to be hastened, a suitable quantity of phosphate of calcium may be added (provided the liquid contains no free acid), which is to be thoroughly incorporated, after which the mixture is to be poured into a well-wetted filter. The latter is best wetted with a mixture of alcohol and water, approaching in alcoholic strength that of the liquid to be filtered, provided it contains any alcohol at all. In most cases, however, water will answer equally well. In pouring the mixture into the filter, the latter should be filled as high as possible, so as to cause the deposition of solid particles in the pores of the paper, at once, over the whole available filtering-surface; and, on refilling the filter, the height to which it had been filled previously should not be exceeded. The first portions of the filtrate should be collected separately and returned to the filter, until the liquid comes through perfectly clear."

[In some rare cases, the act of pouring in a fresh portion of liquid displaces some of the insoluble filtering-material—posphate of calcium, etc.—from the pores of the filter, so that a small portion of the fresh filtrate will be cloudy. To prevent this, a flat (specie) cork may be laid in the filter, upon which any succeeding liquid is afterwards poured.]

"Aromatic or alcoholic liquids must be filtered in well-covered funnels.

"A liquid may be so viscid that it will not easily run through the filter, or the filter may become so firmly adherent to the funnel that no liquid can pass except from its point. This drawback may be removed by placing between filter and funnel some contrivance or substance which will prevent direct contact. A moderately thin layer of clean tow around the sides, leaving the point of the filter clear, will be found a good expedient."

The *aromatic spirit* which forms the basis of simple elixir should always be kept in stock in considerable quantity. The directions are that the first formula should always be followed, if practicable. In places where good oil of orange and lemon is not readily obtainable—and many of our readers are probably unable to readily obtain the best qualities of either oil—or, when the quantity of aromatic spirit to be prepared at one time is very large, the second formula may be substituted.

The writer of this, while preparing one lot of ten gallons of aromatic spirit, had ample opportunity to experience the inconvenience of the first formula. As the preparation was needed at once, the whole of the oranges and lemons required for this purpose had to be peeled at one sitting, necessitating the help of several persons. Besides, it was not an easy matter to find enough lovers of oranges to dispose of the large pile of luscious fruit ready to be eaten. Accordingly, he has been glad to avail himself, since then, of the second formula, and, indeed, the product leaves nothing to be desired.

When the simple elixir is to be used in combination with substances which do not materially modify its *flavor*, and when it is desirable to have it of as fine and pure a flavor as possible, the ordinary oil of orange should be replaced by that known in trade as oil of curaçao, made from curaçao oranges (chiefly). This may be obtained from such houses, for instance, as Schimmel & Co. (New York branch: Fritzsche Brothers, 51–53 Barclay st.). A still finer brand is the so-called oil of mandarin (oranges, from *Citrus nobilis*), which is, however, rather expensive.

A good practical test for the freshness of oil of orange and oil of lemon, and their freedom from terebinthinate odor and taste, is the following: Pour ½ fluidounce of simple syrup into a test-tube, add 1 drop of the oil, and mix thoroughly. Then pour a little on a watch-glass, or on the hand, and taste it. In this combination, any terebinthinate taste will come out quite decidedly. Any oil which shows decided traces of it should be rejected, at least for the purpose of making elixirs or perfumery.

If the oils are found fresh, and free from terebinthinate odor or taste, they *may* be protected from change, for some time, by being mixed with five per cent of *deodorized* alcohol [no other should be used, so as not to render it useless for perfumery]. The addition of this causes a deposit after a while, from which the clear oil may be poured off. A still better plan is to mix the oil with enough deodorized alcohol to dissolve it. Oil of orange requires at least six volumes of deodorized alcohol for this purpose. When the oil is afterwards needed, it is only necessary to measure out, from such a solution, *six* volumes for every *one* volume of oil required.

Oils of coriander and of staranise are not very prone to change, at least the latter. If they are kept in vials or bottles filled as far as possible to the neck, and securely stopped, they will seldom deteriorate.

Deodorized alcohol should always be used for fine preparations of this kind, as the aroma of delicate essential oils is invariably injured by using ordinary alcohol. Any one may convince himself of this by making two simple elixirs, from the same essential oils, and the two kinds of alcohol. The difference will be found quite marked.

53. EMULSIO OLEI MORRHUÆ FORTIOR.

Stronger Emulsion of Cod-Liver Oil.

Acacia, in fine powder.... 2 av. oz.
Sugar, in fine powder..... 4 "
Cod-Liver oil .....16 fl. oz.
Water, enough to make..28 "

Mix the acacia and sugar with the cod-liver oil in a dry mortar, and add *eight* (8) *fluidounces* of water. Then triturate thoroughly and continuously until the oil is emulsified, and finally incorporate enough water to make the product *twenty-eight* (28) *fluidounces*.

Note.—This is a stock-emulsion to be used for making the usual 50-per-cent simple emulsion of cod-liver oil, or compound emulsions containing such additions as may be prescribed by the physician.

Instead of trituration in a mortar, mechanical means (such as a churn, egg-beater, etc.) may be employed for emulsifying the oil. Care should be taken not to suspend or interrupt the trituration or agitation until the emulsifying process is completed, since otherwise the emulsion will not be permanent.

It is advisable to keep this stock-emulsion in the bottles in which emulsions are usually dispensed; 7 fluidounces being put into an 8-oz. bottle, 14 fluidounces into a 16-oz. bottle, etc. When either a plain or a compound emulsion is called for, it is completed by the addition of the required ingredients.

Note by ED. AM. DR.—Some pharmacists are in the habit of using a vaginal syringe for effecting the emulsifying of the oil. The mixture being drawn up and again ejected with force through the fine orifices of the syringe, rapidly becomes emulsified and remains permanent. Though it requires only a very short time to produce what seems to be a perfect emulsion, it is always best to continue the agitation for some time longer (say 15 to 20 minutes). When the stock-emulsion is filled into bottles, it is advisable to pour into each about 1 fluidrachm of alcohol, which will in a measure prevent the surface of the emulsion from becoming tough and viscid. Of course, the bottles should

be well corked and kept in a cool and dark place. Supposing a simple 50-per-cent cod-liver oil emulsion is at any time called for, we use the next succeeding formula:

54. EMULSIO OLEI MORRHUÆ.

Emulsion of Cod-Liver Oil.

Stronger Emulsion of Cod-Liver Oil (No. 53)	14 fl. oz.
Oil of Sassafras	15 min.
Oil of Wintergreen	15 "
Water, enough to make	16 fl. oz.

Mix them thoroughly.

Mode of Administering Paraldehyde.

THE disagreeable taste and persistence of the odor in the breath which appear to be serious inconveniences attending the administration of paraldehyde are calling forth the ingenuity of German dispensers. Herr Sutter (*Pharm. Zeit.*, April 9th) says that he finds rum to be the most advantageous corrigent for masking the taste, and he gives the following formula which he says yields a mixture resembling cold punch:

	Gm.	about.
Paraldehyde,	100	3 fl. oz.
Jamaica Rum,	150–200	5 to 7 fl. oz.
Tinct. of Lemon or Orange Peel,	10	½ fl. oz.
Syrup,	300	8 fl. oz.
Water,	1390–1440	45 to 47 fl. oz.
Dose,	100 gm.	ab. 3 fl. oz.

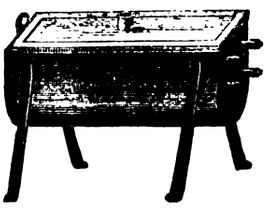
For the administration of paraldehyde as a clyster, he recommends a mixture in the proportion of one part of paraldehyde to two parts of olive oil. Herr Hellwig speaks favorably of two mixtures (*a*) paraldehyde, 3; ol. olivæ, 15; ol. menth. pip., gtt. 3; and (*b*) paraldehyde, 3; spiritus, 6; syr. simp. 8; and tinct. vanillæ, 2. But he prefers an emulsion of paraldehyde, 3; mucil. gum acac. and syr. cort. aurant. āā 8, with the addition of two or three drops of ol. menth. pip.—After *Pharm. Journ.*

Osmic Acid in Neuralgia.

PROFESSOR EULENBURG has communicated some information as to his method of treating neuralgia with osmic acid. A one-per-cent solution of the osmic acid crystals in distilled water is used, and this should be kept in well-closed bottles protected from the light. Notwithstanding this precaution, the solution after a time darkens gradually and a dark, almost blackish, separation takes place, so that it is advisable to prepare only small quantities at a time. The darkened solution can, however, be used without disadvantages. The dose injected is usually 0.005 gramme (=0.5 of the solution); in exceptional cases 0.01 gramme (=1.0 of the solution) has been administered, but even this quantity produces no local or general disturbance. It is rather surprising that this pungent acid (resembling chlorine), which has a strongly irritating action on the outer cuticle, should cause so little pain when injected subcutaneously and scarcely produce any apparent change in the skin or tissue beneath it. At the most there is, as a rule, only a slight reddening or possibly an insignificant swelling in the neighborhood of the puncture, but this quickly disappears. Sometimes the puncture may become blackened by the extrusion of a drop of the acid, but this has not been observed to cause any local inconvenience.—*Pharm. Zeit.* and *Pharm. Journ.*

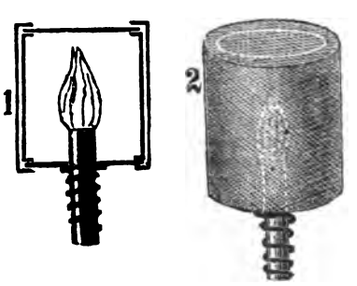
[*Note of A. D.*—While the vapor given off by osmium tetroxide, or osmic acid, OsO_4 even at the ordinary temperature is highly irritating to the eyes, nose and air-passages, it is still more so when warmed or heated. It produces the most violent pain and inflammation of the conjunctiva, and may produce blindness by the deposition of metallic osmium. It also causes a painful eruption when brought in contact with the skin. This can be removed by sulphur baths. The best antidote against the effects of osmic acid when inhaled is the inhalation of sulphuretted hydrogen (recommended by Claus), which must, however, be done very cautiously.

Osmic acid appears in transparent, yellow needles which become soft and may be moulded like wax, and melt at a lower temperature than the latter.]



A SAFETY OVEN FOR PRELIMINARY EXPERIMENTS UNDER PRESSURE.

IN order to ascertain, on small samples of materials, what temperature and what time will be required to bring about reactions under pressure—in sealed glass tubes—Julius Schober, of Berlin, has constructed the apparatus here shown. It is an iron trough, through which several strong iron tubes pass, intended for receiving the sealed glass tubes. The interior of the trough is filled with paraffin, and heat is applied in any convenient manner below. Should the pressure within the tubes exceed the resistance of the glass, the tube will, of course, explode, but the glass with contents will be fired out at both ends of the iron-tube, which must be in such a direction that no damage can ensue. After a preliminary experiment on the small scale, the operator will be much more able to work on a large scale with safety and dispatch.—*Chem. Centralbl.*, 1884, No. 1.



SAFETY BURNER FOR EVAPORATING ETHER, ETC.

To avoid the risk of fire or explosion, when evaporating ether or other inflammable liquids, by the flame of the water-bath setting fire to the vapor, Alexander Ehrenburg recommends the following contrivance.

Construct two cylinders of fine-meshed wire gauze and push one inside the other, using a round iron as a form to keep the cylinder round. Fold in the ends above and below and insert a top and bottom piece, likewise made of fine wire-gauze. Into the bottom a hole is made, through which the end of the burner is pushed, the place of insertion being made tight by a brass washer pressed upwards by means of a spring. This spring at the same time pushes the whole drum upwards, so that it may continuously remain in contact with the bottom of the water-bath. The inventor states that no ignition will take place, even though drops of liquid ether be thrown against the drum of wire-gauze.—*Chem. Zeitung.*

Capsicum in 3-grain doses is recommended by Vidal for piles. Capsicum in a bolus of twenty grains is a favorite army remedy for acute alcoholism.

The Price of Cinchona Bark in Relation to its Alkaloidal Contents.

DR. DE VRIJ writes that at Amsterdam, on February 29th last, he observed that two lots of Ledgeriana bark containing 4.05 per cent of pure quinine were sold at 3*s.* 7*d.* per half kilogramme, whilst one lot of red bark containing 7.35 per cent of total alkaloids and only 1.18 per cent of pure quinine was sold at 3*s.* 5*d.* per half kilogramme. The latter was, however, in long quills having a fine appearance. It is obvious, therefore, that price alone is no indication of alkaloidal contents. He also remarks that the presence of cinchonidine in many samples of commercial quinine is easily detected by the optical test recommended a few years ago by Professor A. C. Oudemans.—*Pharm. Journ.*

Testing Menthol or Migraine Pencils.

MYLIUS recommends testing the genuineness of the so-called migraine pencils by the following characteristics:

The pencils should be of a coarsely-crystalline structure, translucent, and not chalky. When scraped in water, the pencil should make the impression as if it were composed of a hard salt, and should not present a fatty or waxy appearance. If a small portion of the pencil be put into a narrow tube, and the latter be heated in a bath of diluted sulphuric acid, the mass should melt at a temperature at or below 38° C. (pure menthol melts at 36° C.). The whole mass of the pencil should melt at once, not successive layers from time to time. All substances used for adulterating the mass possess a higher melting point, except some very low melting paraffins. But the latter are left behind if the pencils are dissolved in alcohol.—*Pharm. Centralh.*

New Bleaching Process.

AN ingenious modification of the process of bleaching has been introduced by Mr. J. B. Thompson, which promises to effect a great saving of time and labor. In the ordinary process, the goods to be bleached are usually first boiled with lime for about seven hours, after which they are washed in water and "soured" by steeping them for four or five hours in water acidulated with hydrochloric acid. Then after another washing they are boiled for nine hours in soda ley, again washed, and next submitted to the "chemicking" process which consists in steeping them in a dilute solution of chloride of lime for four hours. With the exception of the lime boiling this treatment is repeated several times, involving, in the case of cotton goods, some sixteen distinct operations extending over a period of eight to ten days. In Mr. Thompson's process the "souring" and "chemicking" operations are combined in one. The goods are placed in an air-tight "kier," connected on the one hand with a vessel containing a dilute solution of chloride of lime, and on the other with a gas holder containing carbonic acid gas. A charge of the bleaching solution is first pumped in and the goods are allowed to soak in it during five minutes, after which communication is opened with the gas holder and the liquor is run out from the bottom of the "kier." The partial vacuum thus created causes an inrush of the gas, and the goods are subjected to its action for fifty-five minutes, by the end of which time the whole of the chloride has been decomposed in contact with the fibre of the cloth. Bleaching liquor is then again pumped into the "kier" driving the gas back into the gas holder, and these processes are repeated alternately according to the necessity of the case. Lastly the goods are passed through a [very dilute blueing-] solution of triethylrosaniline and oxalic acid, which removes the natural faint yellow tinge from the cotton.—*Pharm. Journ.*

Assay of Cinchona Bark.

BY A. PETIT.

PROLLIUS has shown that the whole of the alkaloids of cinchona bark may be obtained in solution by treating, say 40 grammes of the powdered bark with 800 Gm. of a mixture composed of

Alcohol, 95% ..... 67 parts.
Ether, sp. gr., 0.724.733 "
Water of ammonia. 32 "

Comparative experiments have shown me that the bark must be in as fine powder as possible, and that, if the mixture be shaken every five minutes, the exhaustion is as complete after one hour, as it will be after five or six hours if merely macerated.

The next step is to pour off 600 Gm. of the liquid, corresponding to three-fourths of the alkaloids contained in the bark, that is, representing 30 Gm. of the latter.

Now add to the ethereal liquid enough of a solution containing one-fourth of its weight of sulphuric acid, so that the aqueous layer which separates shall be just acid. In general, about 20 cubic centimetres will be sufficient.

This aqueous layer contains all the alkaloids of the ethereal liquid.

The layer is separated by a suitable funnel [in fact the ethereal liquid should be in a separating funnel when treated with the acid], and the ethereal liquid again agitated with 5 C.c. of the diluted acid and 15 C.c. of water. This portion is likewise separated, and added to the former.

Now heat the aqueous liquid on a water-bath in order to get rid of the dissolved ether, then dilute it with two volumes of water, and precipitate with caustic soda in excess. On stirring with a glass rod, the alkaloids coalesce together in a mass. The same result may also be obtained by warming the liquid on the water-bath.

Transfer the alkaloids to tared capsule and dry them at a temperature of of 100° C. (212° F.).

If the liquid is not perfectly clear, it is passed through a tared filter, and the gain in weight of the latter when dried at 100° C., added to the alkaloids in the capsule.

We have now the weight of the total alkaloids contained in the 30 Gm. of bark, and from this we may calculate the quantity contained in 1 kilogramme.

The next step is to ascertain the proportion of alkaloids soluble in ether. Proceed as follows:

Dissolve the total alkaloids in a slight excess of sulphuric acid. Add 25 C.c. of ether (sp. gr. 0.724) and 5 C.c. of water of ammonia, and shake. The alkaloids soluble in ether are thereby taken up. Decant the ether; shake again with 10 C.c. of ether and decant again. Unite the ethereal solutions, let stand 15 minutes, so that the alkaloids which are but little soluble in this menstruum may deposit; decant again, and shake the clear, decanted ethereal liquid with 10 C.c. of diluted sulphuric acid (1 in 20). Separate the aqueous liquid; agitate the ethereal solution with 5 C.c. more of the dilute acid, and add the second aqueous layer to the first.

Dilute the united liquids with water to 25 C.c., heat to boiling, and saturate with pure diluted water of ammonia (1 in 5). As soon as the reaction is faintly alkaline, the heating is interrupted.

The sulphate of quinine will now separate in fine needle-shaped crystals.

When completely cold, collect it upon a tared filter, and wash it with a cold-saturated solution of sulphate of quinine; finally dry it at 100° C. (212° F.), until the weight remains constant.

We now have the weight of sulphate of quinine obtainable from thirty Gm. of bark, and, therefore, by a simple calculation, that contained in one kilogramme.

In order to prove that the sulphate of quinine thus obtained is pure, th salt is dissolved with the aid of sulphuric acid, and examined by the polariscope.

If the rotary power does not approach sufficiently close to −238.3, with sodium light, at a temperature of 15° C., the salt must be purified by a renewed treatment with ether and ammonia and recrystallization.

According to my experience, the polarimetric deviation is proportional to the quantity of salt dissolved; the amount of sulphuric acid does not influence this deviation, provided it is present in at least sufficient quantity to form bisulphate of quinine.

In practice, I prefer a solution containing one Gm. of basic sulphate dried at 100° C., dissolved in two Cc. of one-tenth per cent sulphuric acid, and enough distilled water to make twenty Cc. Under these conditions the polariscope deviation is to −110° (for pure sulphate of quinine at 15° C.). According to my experiments, it is necessary to add to the observed degree about one degree for every four degrees of temperature above 15° C.

These different treatments by acid, and the separations of the ether, are very rapidly performed if the operator has had some previous practice in these manipulations. A few hours are sufficient to make a complete assay of cinchona by this process.

STOKER'S IMPROVED INHALING APPARATUS.

DR. STOKER, of the Hospital for the Diseases of the Throat and Chest, London, has designed a simple and portable inhaler, shown in the illustration, which can be easily fitted on any small jug or pickle-bottle, converting it at once into an efficient inhaler. The principle is obvious. A is a rubber cover, B is the mouthpiece of tube flattened a little at the end, C is a smaller glass tube communicating with the outer air. On inhaling at B, air enters at C, and passes through the medicated fluid. The article is turned out at a low price, and is exceedingly portable. Doubtless it will prove salable.—*Chemist and Druggist.*

The Nature of the Ptomaines.

F. MARINO-ZUCO has come to some interesting conclusions regarding the nature of the so-called ptomaines, which appear, however, to require further confirmation.

The author's experiments were made on a variety of fresh animal substances, viz., white and yolk of egg, brains, lungs, heart, liver, spleen, and blood, several methods being employed, with strict attention to all the conditions indicated by their authors. The result of these experiments was the extraction of a base which exhibited all the usual reactions of the alkaloids, but had the constitution of an ammonium hydroxide, and, in those cases in which an aurochloride could be prepared and analyzed, was found to be identical in composition with neurine. In one instance, traces were also found of the so-called "animal quinine."

To determine the origin of this neurine, the author applied the methods above mentioned to the lecithins (prepared by Stricker's method from egg yolk), and found that these substances behave in the same manner, as, for example, a mass of brain, egg, lungs, etc., on applying the same method to the albumen remaining after complete extraction of the lecithins: the result was purely negative. Hence, it is clear that the so-called ptomaines obtained in the extraction of fresh animal substances originate, not as is generally supposed, from sudden alterations of the proteids, but from the splitting up of the lecithins under the influence of acids or alkalies.

As neurine hydrochloride is not decomposed by sodium bicarbonate, the author was able to determine the toxological question in cases of the extraction of alkaloids from substances in which putrefaction has not yet commenced. The hydrochlorides of the alkaloid and of the so-called ptomaines, simultaneously extracted, are dissolved in water, and the liquid, rendered alkaline with sodium bicarbonate, is agitated with the solvent. The neurine then remains dissolved in the water as hydrochloride, and the alkaloid may then be extracted alone. This has been demonstrated by all the experiments made as above described, and by others on yolk of egg mixed with strychnine.

In a subsequent paper the author describes a number of experiments, chemical and physiological, tending to establish the conclusion indicated in the preceding preliminary notice, as to the identity of these bases with neurine. The most characteristic chemical reactions observed in both cases are:

With phosphoric acid: Slight brown coloration on heating.

With platinic chloride: No precipitate, but deposition of yellowish crystals after a short time.

With mercuric chloride: White precipitate.

With auric chloride: Yellowish precipitate, and, after a short time, reduction of metallic gold.

With iodized potassium iodide: Red-brown precipitate, which, however, soon redissolves.—*Gaz. Chim. It.*, 13, 431, and 441 and *Journ. Chem. Soc.*

Vesicating Liquids.

AT the meeting of the Société de Médecine Pratique on February 21st, M. Delthil presented a vesicating liquid composed of a solution of cantharides in acetic acid, which offers several advantages over the ordinary plaster masses. It is applied in coats by means of a brush. The first coat produces a rubefacient effect, the second a slight vesication, the third ordinary vesication, and the fourth very great vesication.

The advantages of this liquid are numerous: 1st, its action is limited and fixed; 2d, its liquid state enables one to apply it to all parts of the body where its employment may be necessary; 3d, it is more acceptable to patients, and its action is perhaps less painful than that of ordinary vesicants; 4th, it acts more quickly than plasters; 5th, the various effects may be obtained by adding to the number of coats; 6th, its advantages are especially seen when used on children.

The action of the liquid may be limited to the desired space by cutting an opening in a piece of cere cloth, as in the application of Vienna paste. Before applying it, the surface of the skin should be washed in warm water, and then rubbed dry and red; after applying the desired number of coats, the spot is covered with wadding.—*Journal de Méd. de Paris*, Apr. 5th, 1884.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 6. WHOLE No. 120.

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

JUNE, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00

SINGLE COPIES, - - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & CO., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

Pharmaceutical Monopoly.

THE following remarks by the editor of the *Chemist and Druggist* show that, in spite of the impression to the contrary, German apothecaries are not very much better off than those of England or the United States, as regards the financial embarrassments to which they are subjected.

The *Pharmaceutische Zeitung* quotes from the *Berliner Tageblatt* some complaints on the enormous increase in the charges of pharmacists. The complaint is said by the Berlin journal to be of public interest. The limitation in the number of pharmacies prevents the reduction of prices by competition, so that of two things one, or perhaps both, must happen, either a general and considerable abatement of the official tariff, or a removal, at least partial, of the monopoly of the existing pharmacies. But another element of the disorder is the preference of physicians for prescribing dear medicines when they get from the apothecary a percentage on the value of the medicines they prescribe. This arrangement, says the journal, is common in the smaller places.

The *Pharmaceutische Zeitung* neither denies nor admits the charge of extortion, but follows it by an allusion to a petition to the Reichstag for the introduction of a system of personal concessions giving to individual pharmacists the right to open shops in particular districts during their lifetime, but reserving to the authorities the right to vend or otherwise dispose of the concession. Some remarkable facts are mentioned. The concession of thirteen new pharmacies in Berlin, estimating each at only £5,000 to £6,000, is equal to a gift of £75,000, the interest on which must be paid by the public in the shape of increased prices for medicines. The value of the monopolies throughout the whole of Germany is estimated at £10,000,000, which sum increases, year by year, like an avalanche. The public, therefore, pays nearly half a million of money a year as interest on a property created out of nothing.

English pharmacists often cast onging looks on the German system. They imagine that it must be perfect bliss to be the owner of one of a limited number of pharmacies in a large district, dispensing medicines at a fixed rate and enjoying some measure of respect as a dependent, if not a servant, of the State, quite certain that no opponent can open a shop in the next street and cut the prices. But the real state of affairs is a good illustration of the fact that a man can make his livonly by personal exertions, and that this is all the public will pay him for. The concession which gives an absolute right to open a pharmacy in any district insures its first owner a good income. But when he wishes to retire, he naturally declines to give away his concession. It is valuable property, securing to him as certain an income as money in consols. His successor, therefore, has to pay for the privilege of carrying on the business a large sum, the yearly interest on which reduces the actual profits to an amount that leaves him not much better off than his English brother.

This fact also accounts, to some extent, for the higher social position enjoyed by the German pharmacist. From the necessities of the case, he must be a larger capitalist than the British chemist generally is. There is hardly a chance that he will be able to start in business for himself unless he possess some few thousands of pounds.

The French Codex.

THE new French Codex has at last appeared. It was issued on Feb. 26th, and was directed by law to go into effect March 15th. Since its appearance it has already been severely criticised, perhaps to a less degree by foreigners than by French critics themselves. The unfavorable criticism unfortunately appear to be well deserved, and it is evident that the editor has made numerous bad blunders and mistakes, worse than have appeared in any other official pharmacopœia published in recent times. When the period of deliberation of the Commission was considered to have lasted long enough, the different reports and contributions were handed over to the editor, who was thereupon ordered to prepare the work and issue it. It does not appear that any precaution was taken to furnish copies of the manuscript and proofs of each printed sheet to every member of the Commission. To the surprise of the Société de Pharmacie of Paris, and of some others who made elaborate investigations and most valuable contributions, it now appears that the latter were to a great extent ignored. The errors and defects so far discovered are of such a nature that protests against the new codex are already being issued, and a recommendation made that the government at once print a new corrected edition, and call in and withdraw all copies of the first issue. Among the errors are noticed, for instance, the omission of any mention or description, in the section of materia medica, of some twenty or more vegetable drugs which occur as ingredients in the galenical part. Had the pharmacists been permitted to inspect the completed manuscript and examine the proofs while the work went through the press, a large number of the blunders would certainly have been avoided.

It is also reported that some prominent French physicians have begun to designate in their prescription, after the names of ingredients, that the formulæ of the former Codex are intended —by writing in brackets ("*ancien codex*"); but this practice is illegal. If they desire any preparation different from the new Codex, they are compelled to write out the whole formula.

The upshot of the present developments will probably be that a Supplement will be issued, in which the errors will be officially corrected.

New York and Brooklyn Formulary.

THE first edition of the New York and Brooklyn Formulary of Unofficinal Preparations was exhausted within ten days after its appearance, which appears to show conclusively that the work was anxiously expected and is appreciated. It is, at present, perhaps merely a skeleton, compared with what it can be made in the course of time; and, in order to prepare for suitable additions, it should be the aim of each possessor of the book to suggest improvements and additions.

The committee, having been so long at work preparing the book, were anxious to pass it through the press as rapidly as possible. This has resulted in overlooking some errors or typographical mistakes, which have, since then, been corrected. Since a considerable number of copies had been issued before the errors were noticed, owners of the book are requested to inspect their copies and make the following corrections, if necessary:

Page 11, line 5 from below, read: 768 minims.

Page 40, line 3 from below, and page 41, line 12 from below, read: Citrate of Iron and Ammonium (instead of Phosphate of Iron).

Page 43, *a*, line 11 from below, read: Phosphate (instead of Sulphate).

A few letters or figures appear broken off in some copies:

Page 16, line 6 from above, read: 16 fluidounces.

Page 18, line 1 from above, read: Elixir.

Page 18, line 11 from above, insert the figure "36."

The National Retail Drug Association.

THIS organization is reported to be flourishing The actual membership is not publicly known, but if one may judge from the action of the numerous local associations that have been formed since the meeting in Washington, several hundred of names and dollars must have been collected. It is very likely that one of the immediate results of the numerous meetings of State Pharmaceutical Associations in June will be the more rapid increase of membership in this national body.

We are somewhat surprised that it has been necessary to use such persistent effort to convince the retail pharmacists of the need for such an organization. The expense is so trifing compared with the prospective advantages that no one should hesitate to affiliate himself with the movement who expects to continue in business in the retail drug-trade. It is worth a great deal to any project to have the services of so many able and sagacious workers as are foremost in this movement, and their enthusiasm deserves better encouragement than it has yet received on the part of those whose interests are most in view.

New York State Pharmacy Law.

AN ACT TO ESTABLISH A BOARD OF PHARMACY AND TO REGULATE THE PRACTICE OF PHARMACY FOR ALL THE COUNTIES OF THIS STATE, EXCEPT NEW YORK, ERIE, AND KINGS.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. There shall be established and created a Board of Pharmacy as follows:

1. Within ninety days after the passage of this act, the New York State Pharmaceutical Association shall nominate ten pharmacists, residents of the district to which this act applies, from which number the Governor of the State shall, within twenty days after notice to him of such nomination, appoint five, who shall constitute the Board of Pharmacy.

2. It shall be the duty of each member of the Board of Pharmacy, immediately after the receipt of the notice of his appointment, to appear before the clerk of the county in which he resides, and make and subscribe an oath to properly and faithfully discharge the duties of a member of the said Board of Pharmacy.

3. One of said members shall hold office for one year, one for two years, one for three years, one for four years, and one for five years, from the first Tuesday of September in the year one thousand eight hundred and eighty-four, which term shall be determined by lot at the first meeting of said Board of Pharmacy.

4. The said members of said board shall meet on the first Tuesday of September in the year one thousand eight hundred and eighty-four at the College of Pharmacy building in the city of Albany, at twelve o'clock, noon, of that day, and shall immediately proceed to organize, by determining by lot the respective terms for which they shall hold office, and by electing a president, treasurer, and secretary, who shall hold their respective offices for the term of one year.

5. The board shall hold meetings at least once in three months. Three members shall constitute a quorum.

6. The said board shall have power to make such by-laws, not inconsistent with the constitution, or the provisions of this act, as it may deem necessary.

§ 2. It shall be the duty of the Board of Pharmacy:

1. To examine all persons applying for licenses under this act, and to grant licenses to such persons as may be entitled to the same.

2. To keep a record of licensed pharmacists.

3. To investigate all complaints of disregard, non-compliance, or violation of the provisions of this act, and to bring all cases of violation to the notice of the proper prosecuting officers.

§ 3. Any person who, at the time of the passage of this act, is carrying on the business of retailing or dispensing drugs, medicines, or poisons, or practising pharmacy on his own account, or who, at the time of the passage of this act, shall have served five years or upwards at the business of retailing or dispensing drugs, medicines, or poisons, or practising pharmacy, and who is over the age of twenty-one years, or any person who holds a certificate of registration as a pharmacist from any Board of Pharmacy legally created under the laws of this State, or any person who holds a diploma as a graduate of any incorporated college of pharmacy of this State, shall be granted a license by said Board of Pharmacy to practise as a pharmacist, upon compliance with the requirements hereinafter stated.

§ 4. Any person entitled to a license as a pharmacist, as provided for in section three, who shall not, within ninety days after the organization of the Board of Pharmacy, as herein provided, make a written application to such board for such license, accompanied by a written statement signed by him or her and duly verified before an officer authorized to administer oaths within this State, fully setting forth the grounds upon which he or she claims such license, shall be deemed to have waived his or her right to a license under the provisions of said section.

§ 5. No license shall be granted to any person under the provisions of section three of this act, unless the applicant pays to said Board of Pharmacy the sum of five dollars.

§ 6. The said Board of Pharmacy shall make such regulations for the examination of applicants for licenses and the granting of licenses to such applicants, and the payment of license fees, as it may deem proper; but no license fee shall exceed the sum of five dollars.

§ 7. The New York State Pharmaceutical Association shall, annually, after the first Monday in June in the year eighteen hundred and eighty-four, nominate ten pharmacists, residents of the district to which the act applies, from which number the Governor shall fill the vacancy annually occurring in the board, and the person so appointed by the Governor shall hold office for five years. In case of the death, resignation, or removal from the State of any member of the board before the expiration of his term of office, or in case of vacancy occurring from any other cause but expiration of term of office, the Governor shall fill the vacancy from the list of names nominated as aforesaid during the year in which such vacancy occurs, and the person appointed shall hold for the unexpired term of his predecessor.

§ 8. Every person to whom a license is granted by said Board of Pharmacy shall display the same in a conspicuous part of the pharmacy in which he or she does business.

§ 9. No license granted by said Board of Pharmacy shall be revoked except for just and sufficient cause.

§ 10. It shall be unlawful, after the first day of January in the year one thousand eight hundred and eighty-five, for any person to practise as a pharmacist unless he or she shall have been granted a license by said board.

§ 11. Nothing in this act shall be so construed as to apply to the business of a practitioner of medicine, nor to prevent practitioners of medicine from supplying their patients with such articles as they may deem proper; nor to those who sell medicines and poisons at wholesale; nor to the manufacture or sale of patent or proprietary medicines; nor to the sale of the usual domestic remedies by retail dealers in the rural districts. And nothing in this act shall be so construed as to prohibit the employment in any pharmacy of apprentices or assistants, for the purpose of being instructed in the practice of pharmacy; but such apprentices or assistants shall not be permitted to prepare and dispense physicians' prescriptions, or to sell or furnish medicines or poisons, except in the presence of and under the personal supervision of a licensed pharmacist.

§ 12. All violations of the provisions of this act shall be deemed misdemeanors and shall be punished as such.

§ 13. This act shall not apply to the counties of New York, Erie, and Kings.

§ 14. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

§ 15. This act shall take effect immediately.

THE English translation of the last German Pharmacopœia, by C. L. Lochman, is now ready at the publishers (J. H. Vail & Co., New York). As the work is so frequently required for reference by pharmacists in this country, the attention of all our readers is directed to it.

The only misprint so far noticed in the volume is on page 212, where in the title: *Tinctura Ferri Pomatia*, the last word should read: *Pomati*.

Substitution of Sodium Iodide for Potassium Iodide.

DR. BERG (*Arch. of Medicine*, April, 1884) enters a plea in behalf of the sodium iodide. Both from theoretical considerations and practical experience he urges the substitution of the sodium for the potassium salt. He makes the following claims for the iodide of sodium: 1st, it can be used therapeutically for almost all, certainly the chief purposes for which potassium iodide is used, and, he believes, with similar beneficial effects; 2d, sodium iodide is more assimilable than the iodide of potassium, both locally to the digestive organs and to the general system; 3d, many of the local and general undesirable effects which are produced by the potassium iodide do not follow the use of the sodium iodide. He concludes by saying that it is to be hoped, therefore, that the sodium iodide will be used by those whose clinical advantages admit of an extensive trial of the drug, so that a more extended experience may confirm that which a limited experience would seem to claim for this drug.

Iodoform not a Tænicide.

PROFESSOR SIM having announced that iodoform, in doses of about 0.06 (1 grain), was a prompt remedy for tape-worm or round-worms, and several other practitioners having confirmed this statement, Dr. Nikolsky made a systematic investigation of this supposed action of iodoform, and found that it produced an effect only in two cases out of twenty-three. Hence, it may be pronounced as entirely unreliable as a tænicide.

Excessive Use of Morphine.

DR. LIVINGSTON S. HINKLEY, in the *N. Y. Med. Journal*, reports a case of a woman of good physique, twenty-six years of age, weight 145, who is in the habit of taking daily eighty-five grains within twenty-four hours, which Dr. Hinkley believes to be the largest quantity of morphine taken by any living being within the time mentioned.

Chlorozon.

THIS is a name given by Dienbein-Browochski to a liquid produced by decomposing chloride of lime by hydrochloric acid, and conducting the generated gases through caustic soda. The liquid, when properly saturated, has a yellow color, a peculiar odor, and is a powerful bleaching agent. The peculiar substance contained in it is not identical with hydrochlorite of sodium. In a cool and dark place the solution keeps for a long time, decomposing only very slowly with elimination of oxygen. Dilute solutions keep better than concentrated ones. Addition of acids and of bromine increase the bleaching power. It is also reported to be a powerful disinfectant.

To Overcome the Odor of Chloroform.

PROF. NUSSBAUM has a few drops of oil of cloves placed on the towel before giving the anæsthetic. The addition of one part to six of cologne to ether makes it much more easy of administration.

Fellow's Syrup of the Hypophosphites.

In the *Pharm. Rundschau* of New York (March, 1884), Dr. Adolph Tscheppe, of that city, publishes an article on this popular medicinal compound. After asserting the inaccuracy of a professed analysis of the syrup published by A. Gawalowski, of Brünn, the author explains his process of analysis, and concludes by giving the following formula, which, he states, will yield a product in every respect similar to the original:

Soluble phosphate or pyrophosphate of iron (U.S.P.)	15 grains.
Hypophosphite of sodium	45 "
Sulphate of Quinine	5 "
Strychnine (previously dissolved by itself)	½ "
Hypophosphite or sulphate of manganese	15 "

Thick syrup to make 16 oz. by w't

The salts are dissolved by gentle heat, but without the addition of acid.

The author remarks on the statement which has been published that each teaspoonful contains $\frac{1}{70}$ grain of strychnine, but he judges from his analysis that this proportion has since been reduced.

Kidney and Liver Cure.

A correspondent, some time since, of the *Druggists Circular* remarked that although the following does not make "Warner's Safe Kidney and Liver Cure," "by a strange coincidence it is so like the article that it would trouble Mr. Warner or any one else to find the difference."

Liverwort	1 ounce.
Nitrate of potass.	320 grains.
Water	sufficient
Alcohol	2 ounces.
Glycerin	1½ "
Essence of wintergreen	40 drops.

Infuse the liverwort with one pint of hot water for two hours; strain or filter; dissolve the powdered nitrate in the liquid; when cold add the alcohol, glycerine and essence of wintergreen, and make up the measure to one pint with water. [See, also, page 118.]

Shoeblacking.

A brilliant paste blacking may, according to Dick, be prepared by mixing 2 pounds ivory black, 1 pound molasses, ½ pound each of olive oil and sulphuric acid, and enough water to reduce the product to the proper consistence.

Herr Artus recommends the following formula as less destructive to leather than most blacking in use: Mix thoroughly 3½ pounds vegetable black, 1½ pounds ivory black, 5 pounds each of molasses and glycerin; cut 6 ounces gutta percha into small pieces, melt, and, when fluid, add 20 ounces of olive oil, and afterward 2 ounces of stearin; stir, while hot, the second mixture into the first, and then a further addition of 10 ounces of gum senegal dissolved in three quarts of water is made. This may be kept as stock, and for use diluted with about three times its bulk of warm water.

For liquid blacking without sulphuric acid, mix 1 pound finely powdered ivory black, ⅛ pound molasses, 2 ounces sweet oil, and 1 pint each of beer and vinegar. Mix the first three ingredients very thoroughly together before adding the last two.

A better liquid blacking may probably be made by the following formula: Mix 1 pound each of ivory black and molasses and ½ pound of sweet oil, and gradually add ½ pound of sulphuric acid diluted with three times its weight of water, mix well, set aside for three hours. Reduce to proper consistency with water.

Owing to the calcium phosphate present in the ivory black, the sulphuric acid is provided with a base to unite with and does much less to injure the leather than is generally supposed. The addition of sulphuric acid greatly adds to the brilliancy of the blacking, but it should be used in no larger quantity than necessary for this purpose.—*Indiana Pharm.*

Giving Quinine to Children.

Dr. F. E. Daniel, of Fort Worth, Texas, recommends in the *Courier Record of Medicine* that the quinine, having been compressed into the smallest bulk, is to be placed in a half-teaspoonful of the white of egg, and covered with another portion of the albumen. Care must be used that the quinine does not come into contact with the spoon.

Ink for Type-Writer Ribbons.

Aniline black, ½ oz.; pure alcohol, 15 oz.; concentrated glycerin, 15 oz. Dissolve the aniline black and add the glycerin.

The Ginger Beer Plant.

This is a startling or a sparkling little novelty, some account of which has been going the round of the journals, and which promises to provide all thirsty souls with a ready-made and refreshing gingerade during the coming summer. We do not prognosticate that it is calculated to produce any great alarm, or that it will revolutionize the Ginger Beer Trade; but still, like the "Vinegar Plant" which was, some few years ago, hailed with so much delight by frugal housewives, there is something in it, and that something appears to be a little fungoid growth or plant, which was first discovered in Norfolk, and consists of a mass of irregular white grains resembling cooked tapioca, or, still more, half-dissolved gum tragacanth when crushed in the fingers. A writer in the *Queen* remarks, "Would that I could introduce it with a high-sounding botanical name! but alas! I fear that if it has one at all, it must be far down among the Cryptogamia, for to the higher order it certainly does not belong. Its origin, like that of many illustrious discoveries, it lost in obscurity. It has been cynically asserted that its ancestor was a fungoid growth in a barrel, but these evolution questions are very delicate, and we may dismiss the charge as "not proven." The process of ginger beer brewing from this mysterious substance is as follows: Whatever vessel is used should be at least half-full of the grains. Fill to the top (a wide-mouthed pickled jar is best) with water that has boiled, and add several lumps of sugar—the quantity must be regulated by taste, as a hard-and-fast recipe is impossible. Once a week, on a fixed day, drop in a few pieces of root ginger, also at discretion. Every day, the water poured in twenty-four hours before must be carefully strained off through muslin, and bottled and corked securely. Some advise adding a little yeast, but if the grains in the jar are numerous enough to produce sufficient fermentation—*i.e.*, a decided froth—there is no need to add yeast. Replenish your jar with boiled water and sugar, and cover again with piece of linen or calico; on no account cork it. The liquid you bottle off is fit to drink in two days, and, to a not too critical palate, it forms a refreshing, mild gingerade, easily prepared, and certainly the cheapest of all possible drinks of the kind. Every week the exhausted pieces of ginger must be fished out. Avoid handling the grains. They increase rapidly and must be thinned out by pouring off when too numerous, forming new colonies and consequently a larger supply of gingerade.

Sticky Fly-Paper.

Take of

Resin, in clean pieces	4 ounces.
Castor oil	2 "

Melt together by means of a water bath, and spread on sized paper.

If it should be an advantage to have something sweet, it is probable that glucose, thickened by an addition of dextrin or gum, would be very attractive to the flies. But, as this mixture would be liable to soak through paper in very hot weather, it would probably be safest to spread it on paraffined paper.—*The Druggist.*

Arnica Jelly.

Starch	280 grains
Glycerin	4 oz.
Water	1 "

Mix; heat to 240°, or until the starch-grains break and the mass appears transparent. When nearly cool add tincture arnica, ½ oz., with oil of rose and red coloring to suit. An excellent preparation for chapped hands, face, etc.—*Chicago Pharmacist.*

Catarrh Inhalant.

Sulphuric ether	1½ oz.
Chloroform	1 "
Tincture iodine	½ "
" camphor	½ "
Oil of tar	½ "

Mix and inhale, closing the nostril after each inhalation and forcing the vapor into the nose.—*Chicago Pharmacist.*

Aquarium Cement.

	Oz.
Dry Venetian red	12
" carbonate of iron	4
" black oxide of manganese, pure	2

Beat into a thick mass or putty with boiled linseed oil.—*Chicago Pharmacist.*

On the Use of Steel Spatulas.

It is a common belief that steel spatulas should not be used in making ointments containing mercury, nor brought into contact with them afterwards. J. F. Burnett has been making some experiments on the subject, and has communicated the result in a paper in the *Chemist and Druggist*. He finds that calomel, white precipitate, and mercuric chloride ointments are not in the least affected by contact with steel. Nor are the petrolatum ointments of the iodides, nitrate, or the oxides, but the lard ointments of the iodides and oxides exhibit a slight reduction, and the nitrate a very marked reduction. The author has altogether disburdened his mind of the old superstitions concerning the action of steel knives on the neutral ointments of mercury, and believes that for their manipulation steel spatulas are quite as good as those of bone, and more lasting and convenient.

Mullein as a Remedy for Cough.

The use of mullein as a palliative for the cough of phthisis seems to be meeting with favor in various quarters. The customary form of administration has been a decoction of the plant in milk. More recently, the smoking of the leaves has been recommended as a more agreeable and effective mode of administration.—*Boston Medical and Surgical Journal.*

Notes on Commercial Drugs and Chemicals.

(From the April "Handelsbericht of Gehe & Co., of Dresden.)

Aconitine.—Gehe & Co. state that they employ, in the preparation of this alkaloid, only the tubers of *Aconitum Napellus* from the Swiss, Bavarian, and Austrian Alps. According to Dr. Kobert, of Strassburg, both the crystalline and the amorphous aconitine of Gehe & Co. [which should be designated as "*German aconitine*"], act about alike, the fatal dose for a frog being about $\frac{1}{10}$ milligramme, and $\frac{1}{10}$ milligramme for a rabbit. This "German aconitine" has been examined also chemically by Dr. v. Schroeder, who found that it yielded the theoretically required quantities of benzoic acid and aconine on decomposition. Hence it is concluded by Gehe & Co. that their aconitine is chemically pure. [It is a pity that the exact process by which this aconitine is prepared is not published. In the present state of our knowledge of the chemistry and pharmacology of this alkaloid, it seems that the only commercial kind of uniform and reliable strength is the French brand, viz., Duquesnel's, the average dose of which is about $\frac{1}{100}$ grain, and must be used with great caution even at that dose.—ED. A. D.]

Agaricin—not an alkaloid, but rather of an acid character, is in active demand. It is reported to be very efficient against night-sweats.

Aloin.—Much in request, especially in England and the U. S. It is difficult to furnish at all times a product of uniform color, owing to the varying color of different lots of Barbadoes aloes, which is used for this purpose by manufacturers.

Aluminium.—Schering & Co., of Berlin, have acquired a patent by which this metal can be prepared electrolytically at about one-fourth its former price. It is, therefore, likely to become of much more general use than heretofore.

Ammonium bromide—as well as *Sodium bromide*, are steadily increasing in demand, while *Potassium bromide* is stationary, or rather receding.

Atropine.—Prof. Ladenburg has examined the refuse product of Gehe & Co.'s atropine manufacture, heretofore designated as "belladonnine," and has identified it as "oxytropine." Whether it has existed as such in belladonna, or has been produced in the course of manufacture through the agency of alkalies, cannot be decided as yet, but steps are being taken to clear up the doubt.

Benzoic Acid.—Artificial acid from the urine of horned cattle has disappeared from the market, but acid from horses' urine can be obtained. The quality of "urine" benzoic acid has improved so much that it is difficult to distinguish it from others.

Benzoin.—Attempts are about to be made to establish plantations of the benzoin-yielding trees in the East. The chief obstacle so far has been the uncertainty as to the true source of the different benzoins of the market, of which only one, namely, Sumatra-benzoin, is certainly known to be yielded by *Styrax Benzoin*.

Recently R. Jamie, of Singapore, has succeeded in obtaining pieces of the stem and leaves of the genuine Siam-benzoin tree. This is likely to be the first step towards a success of the undertaking.

Boroglyceride is highly recommended as a protection to the skin against sun-burn.

Bromine. — "Solidified" bromine [previously mentioned and described in this journal] is a solid, in form of sticks or pencils composed of kieselguhr (siliceous shells) saturated with three times their weight of bromine, which are dry to the feel, and may be handled. This article is put up in bottles of 250 and 1,000 Gm. ($\frac{1}{2}$ and 2 lbs).

Cainca root—the *Raiz preta* of the Brazilians, derived from *Chiococca anguifuga*, is again obtainable. It is employed as a powerful diuretic and purgative; in large doses it acts as an emetic. The active principle is caincic acid, in form of fine white, needle-shaped crystals soluble in ether and in alcohol.

Cannabine Tannate.—In place of the pure cannabine, the tannate is now preferred. It is in good demand (as a harmless but effective soporific).

Carbolic Acid.—While the demand for the crude liquid acid has been active, the consumption of the crystalline has decreased, owing to the introduction of more powerful and rapidly acting disinfectants and antiseptics. While carbolic acid requires, in some cases, a full week before destroying certain micro-organisms, corrosive sublimate, for instance, destroys them in ten minutes, and even more rapidly (in solution of 1 in 1000). Besides, the employment of corrosive sublimate, or of bromine, costs much less than that of carbolic acid.

Carbonic Acid Gas.—A large company has been organized which furnishes liquid carbonic acid gas in strong iron flasks, for the manufacture of carbonated waters, also for refrigerating or chilling purposes in technical works, or for facilitating the crystallization of refractory substances in chemical works.

Caroba Leaves, from *Jacaranda tomentosa*, are highly recommended as a diuretic and sudorific; also as tonic. They have long been used in Brazil, and are held in the same repute there as sarsaparilla in many other countries.

Cocaine has been found to dilate the pupil of the eye like atropine, and has been employed for this purpose, but very sparingly. It is not likely to displace atropine—particularly as it costs ten times as much—unless it should be found to possess other unexpected advantages.

Codeine has risen 50 per cent in price since the end of last summer, and the demand has been so brisk that orders could only be filled in the order in which they were received.

Collodion.—The introduction of bromated gelatin plates in photography have greatly diminished the use of collodion. *Gelatinized collodion*, however, for the instantaneous preparation of liquid collodion by the addition of other, has been in considerable demand for America.

Cotton Plant Leaves.—The leaves of Gossypium barbadense have been in some demand, but Gehe & Co. are not aware for what purpose. Possibly as a substitute for cotton-root bark.

Curare and *Curarine.*—In view of the repeated complaints regarding the unreliability of curare, Gehe & Co. recommend the employment of the alkaloid, particularly the sulphate.

Ergotinine, prepared after Tanret, appears to become established as the most reliable preparation of ergot for hypodermic use (compare NEW REM., 1883, p. 343). It has been used in doses of 0.0002 Gm. ($\frac{1}{320}$ grain) to 0.0007 Gm. ($\frac{1}{110}$ grain), corresponding to 0.2 to 0.7 gm. of the solution sold by Gehe & Co., with very good success in various forms of neurosis and some cases of incontinence of urine.

The peculiar septic substance discovered in ergot by Dr. Kobert, of Strassburg — sphacelic acid — could not be prepared in a pure state, owing to its readiness to decompose. But during the manufacture of ergotinine, a resinous by-product was obtained (probably derived from the decomposition of sphacelic acid), which was found highly poisonous.

Ficus Doliaria.—The juice of [the fruit of] *Ficus doliaria* or *Ficus gemellaria*, is offered in London for sale. According to a report of Dr. Moncows (*Lancet*, 1882, p. 78), it has been found valuable in treating a peculiar form of anæmia occurring in Brazil. It is said to contain an active principle, *doliarine*, having also drastic and anthelmintic properties.

(To be continued.)

Cure for Nitric-Acid Burns.

SOME weeks ago, in experimenting with "brown fuming nitric acid," I happened to splash a portion of this powerfully corrosive liquid upon the skin of my face. The pain caused, I need hardly say, was very acute, and in a few minutes an enormous blister arose upon the part affected. Copious application of cold water, then of such powerful bases as ammonia, potash, and lime in water had no perceptible effect upon it, except, perhaps, to increase the violence of the inflammation. After a few minutes, however, I luckily bethought me to try the effect of a dilute solution of sulphurous acid, of which I had a good supply made but a short time previously. Assuming that the action of the strong nitric acid was an intensified process of oxidation, I cast about for a reducing agent which might safely be trusted to be innoxious, even if it did not afford much relief. The effect of its application was astounding. In a very few minutes, the blister was reduced; the oxidizing process of the strong acid was completely arrested, without having reached the roots of the hairs on the face; the painful irritation was completely removed, and in an incredibly short space of time the wound healed.

I do not write to suggest a repetition of such a painful, though interesting experiment, but to record the result of my experience for the benefit of others. —A. IRVING, in *Chem. News.*

Condensed Mares' Milk.

A FIRM has lately been established under the name of Carrick's Russian Condensed Mares' Milk Company, for the purpose of preparing this new dietary (or medicinal) product. It possesses a large number of mares, specially kept for the purpose of yielding milk, in the plains about fifty miles from Orenburg (Russia), upon Asiatic territory. The factory is also situated there.

According to P. Veith, the contents of two cans of this condensed milk, prepared in the summer of 1883, consisted of a very thick viscid mass of almost pure color, agreeable odor, and pure, somewhat honey-like taste. It was easily and almost completely soluble in water to a pure white liquid. A few small undissolved flakes evidently consist of coagulated albumen. Solutions prepared in the proportion of one to seven showed specific gravities varying from 1.033 to 1.036. The analysis of two samples gave the following results:

Water	26.73	24.04
Solids	73.27	75.96
Fat	4.77	6.20
Protein	13.69	12.17
Sugar	53.07	55.81
Ash	1.74	1.78

—*Milchzeitung* and *Dingl. Pol. Journ.*

[It is possible that the substitution of this for cow's milk will be of value to those who wish to make kumyss.—ED. AM. DR.]

Ichthyol.

THIS substance, of which we gave an account in our last volume (NEW. REM., 1883, p. 197), is reported by Baumann & Schotten to be the sodium salt of an acid, for which the formula $Na_2C_{22}H_{22}S_2O_6$ is given provisionally.—*Chem. Centralbl.*

The Color of Water.

THE following abstract from a paper on this subject by W. Spring (in *Biederm. Centr.*, 1883, 289) will be of interest.

Fresh distilled water in tubes 5 meters × 4 cm. appears of a sky-blue color, which, however, changes after a few hours to a pale green; but if 0.0001 of mercuric chloride is added to the original water, no change occurs; if it be added to the green water, a blue-green tint is obtained, but never the original color; it is therefore concluded that the change from blue to green is effected by minute organisms. A beam of light sent through the column of water is invisible (laterally?), consequently the color is natural to the water and not to reflection from minute particles. Amyl and ethyl alcohol and acetic acid are colorless. Pure blue water treated with lime and then with carbonic anhydride appeared at first black, changing to brown, yellow, and green; similar results were obtained with baryta-water containing free silicic acid and sodium silicate. The final conclusions drawn are:—light does not pass through a thick layer of water containing solids in suspension; the yellow color is due to suspended matter, or to that matter forming a saturated solution; as carbonates are deposited, the color approaches more nearly to blue. In natural blue waters, calcium and magnesium carbonates, silica and alumina are in solution; whilst in the green they are partly undissolved through a deficiency in the carbonic anhydride. In the Blue Rhine we have 786 $CaCO_3$ and 79.5 $C.O_2$ and 76 CO_2.—*Journ. Chem. Soc.*

Test for Nitric Acid in Water.

ACCORDING to Williams, a strip of zinc which has been coated with copper by being placed into a three-per-cent solution of sulphate of copper is immersed into the liquid to be tested. Any nitric acid present is thereby converted into ammonia, which is precipitated by mercuric chloride as amido-chloride of mercury (white precipitate). If the water to be tested contains ammonia besides, the latter is determined by a separate assay, and deducted from the other.

About Doses.

IN a paper by Dr. J. B. Roberts, of Philadelphia, entitled "Seven Common Surgical Follies" (*The Polyclinic*), the writer says:

The dose folly is the last topic I shall discuss with you this evening. I should, perhaps, term it the *small* dose folly, for I refer to the practice of administering insufficient doses of medicines. The fault pertains, of course, to medical as well as to surgical practice. Nearly every year of my professional life leads me to increase the dose of some one or other of the articles that I am accustomed to use. Of what use is a sixteenth or an eighth of a grain of morphia to a man with severe pain? Give him a quarter of a grain or even a half, repeated, if necessary, and he will soon be comfortable and thankful. Perhaps he will also pay his bill. The medical requirements of to-day are drugs and doses with inherent power. You can't lift a block of granite with a weak crowbar; neither can you cure agony with a debilitated dose of anodyne. So it is with all other remedies. If any medication at all is required, give that which will do the work, and do it promptly. A few large doses will dispel the symptoms and cure the patient, when months of nonsensical drugging with emasculated remedies will bring nothing but discredit to the practitioner and obloquy to medical science. I have spoken of morphia as a type, but the same remarks hold good concerning quinia, atropia, strychnia, digitalis, iodide and bromide of potassium, mercury, pilocarpine, and, indeed, of all our remedies. Use the alkaloids or active principles in every case. Then you will know what you are giving, and you will soon learn that much larger doses are tolerated than is usually thought possible. Many physicians and surgeons fail to cure, not because of faulty diagnosis, not because of inappropriate remedies, but because of insufficient dosage.

DR. F. WARNER, of Columbus, Ohio, in a paper in the *Lancet and Clinic* of April 26th, argues in favor of small doses frequently repeated as giving better results than larger doses at longer intervals, and mentions the use of $\frac{1}{100}$ grain of sulphate of atropine every four hours in the night sweating of phthisis as acting better than $\frac{1}{60}$ grain given at bed-time. The same is likewise true of the remedy when used in enuresis.

Half-teaspoonful doses of tincture of aloes, or a corresponding dose of the solid extract, every four hours, will better remove ascarides from the rectum than a single dose or the occasional use of injections. He also cites a case in which $\frac{1}{100}$ grain of sulphate of strychnine rapidly cured a case of lack of tone of the bladder sphincter in an adult male.

Percentage of Quinine in Different Salts of the Alkaloid.

ACCORDING to Tanret, the salts of quinine in common use contain the following proportions of the alkaloid:

	Per cent.
Acetate	87.34
Hydrate (quinine precipitated and dried)	85.70
Basic chlorhydrate	81.60
Lactate	78.26
Basic bromhydrate	76.60
Valerianate	76.05
Basic sulphate (the ordinary sulphate)	74.30
Sulpho-vinate	72.00
Neutral bromhydrate	60.00
Neutral sulphate (or acid sulphate)	57.24
Tannate	20.60

—*Detroit Lancet.*

Method of Preserving Glycerite of Gelatin.

MR. A. BERGHOLZ states that he has employed for more than six years a method for preparing glycerite of gelatin without the addition of antiseptics such as β-naphthol or salicylic acid.

Since the compound is now employed in surgical and dermatological practice, it may be of interest to learn his method.

A weighed quantity of gelatin is well washed with cold water to remove adhering sand or dust. It is then soaked in cold water during a few hours, and finally weighed, in order to ascertain how much water it has absorbed. Ordinarily a good jelly is obtained if one part of gelatin has absorbed two parts of water. The softened gelatin is put into a capsule, which is warmed upon a steam or water-bath. When the mass is liquid, a mixture of a definite quantity of glycerin and alcohol is added, and, after thorough mixing, the perfectly clear solution is poured into bottles, which should be well stopped. When requiring any of the mixture for use, the bottle is put into warm water until the jelly is melted, and a sufficient quantity then poured out.

As is well known, gelatin is precipitated by the direct addition of alcohol, but a mixture of glycerin and alcohol may be added to gelatin in all proportions, and the relative proportions of these liquids will depend upon the purposes for which the jelly is to be used. —*Pharm. Zeit. f. Russl.*, 1884, No. 6.

BIBLIOGRAPHY.

THE CINCHONA BARKS: Pharmacognostically Considered. By FRIEDRICH A. FLUECKIGER, Ph.D., Professor in the University of Strassburg, Germany, and Author of "Pharmaceutical Chemistry." Translated from the original text, with some additional notes. By Frederick B. Power, Ph.D., Professor of Pharmacy and Materia Medica in the University of Wisconsin. With eight lithographic plates and one woodcut. Philadelphia: P. Blakiston, Son & Co., 1884: pp. 103. 8vo. $1.50.

THIS work is especially opportune, owing to the rapid advances that have recently been made in our knowledge of the barks yielding quinine and its congeners. No one is better fitted to write upon the subject than Prof. Flueckiger, and the publishers have given us a sumptuous translation which is a credit to their good taste.

THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN. 1884. London. Printed for the Pharmaceutical Society of Great Britain. pp. 510. 8vo. 1*s.* 5½*d.*

THIS is not only a list of the members, associates, and apprentices, but contains also the laws regulating the practice of pharmacy in Great Britain, the by-laws of the Society, the names of the prizemen and scholars, from the foundation of the Society, facts relative to the benevolent fund, etc.—in fact, a complete hand-book of matters connected with the legal aspects of pharmacy in the Kingdom.

FEMALE HYGIENE AND FEMALE DISEASES. By J. K. SHIRK, M.D., etc. Lancaster, Pa.: The Lancaster Publishing Co., 1884; pp. 107. Sm. 8vo.

THIS is intended for the instruction of non-professional persons, and, considering the difficulty of handling the subject in a manner adapted to the class it is intended to reach, it has been done very well. Its teachings are conservative and its directions quite as clear as could well be expected.

THE MEDICAL DIRECTORY OF PHILADELPHIA FOR 1884. Edited by SAMUEL B. HOPPIN, M.D. *Philadelphia*: P. Blakiston, Son & Co.; pp. 205. 8vo. $1.50.

THIS is a very carefully made and, evidently, complete directory to the public medical and charitable institutions, medical societies and colleges, dentists, nurses, medical laws, municipal and government medical services, etc., and gives, moreover, the names and addresses of all the registered physicians of Philadelphia, arranged according to the sectarian or non-sectarian nature of their qualifications, and in the form of a street list. It is handsomely published and in every respect one of the best works of its kind.

THE STUDENT'S GRAMMAR OF LATIN. Indispensable in Pharmacy and Medical Science. For the First Instruction in the Fundamental Rules of Latin, with the Correct Roman or Continental Pronunciation. Appendix containing Miscellaneous Notes. By ADOLPHUS F. W. NEYNABER, Sr. Detroit, 1884; pp. 33.

THIS is especially adapted for students of pharmacy, and gives a great deal of information in condensed form.

SHAKESPEARE AS A PHYSICIAN. Comprising Every Word which in Any Way Relates to Medicine, Surgery, or Obstetrics, Found in the Complete Works of that Writer, with Criticisms and Comparisons of the Same with the Medical Thoughts of To-day. By J. PORTMAN CHESNEY, M.D., Ex-Secretary of the Medical Society of Missouri, etc. St. Louis: J. H. Chambers & Co., 1884; pp. 226. 8vo.

THE author has evidently studied the writings of Shakespeare with great

care, and, besides the quotations from his works, has added, in the way of comment, much that is of interest, although the connection is sometimes not very apparent.

ELEMENTS OF PHARMACY, MATERIA MEDICA, AND THERAPEUTICS. By WILLIAM WHITLA, M.D. (Q. U. I.), Physician to the Belfast Royal Hospital, etc. With Lithographs and Woodcuts. Second Edition. London: Henry Renshaw, 1884; pp. 26. 10*s.* 6*d.*

THIS is one of Renshaw's series of manuals for medical and pharmaceutical students, and is based upon the British Pharmacopœia. It contains, however, much information concerning the nature and uses of many things as yet unofficinal, and is especially strong in its practical details. It is, as well, a very good book for general reference.

A SELECTION OF DIALECTIC POEMS. Written on the Rail and Dedicated to the "Army of the Gripsac" by HARRY HOLLAND (H. J. Richardson), who, Aside from the Pleasant Task of Trying to Amuse his Associates with this Collection of Scraps, has the honor to represent Seabury and Johnson, Manufacturing Chemists, New York and London. Boston: Travelers' Publishing Co., 1884; pp. 105.

WE have read it and enjoyed it and await with pleasant anticipations the appearance of more of the same sort.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX. A Yearly Record of Useful Information on Subjects Relating to the Medical Profession. London: Henry Kimpton; New York: Putnam & Co. 1883–4; pp. 305. Sm. 8vo.

THIS is the production of Percy R. WILDE, M.D., and contains a great variety of information likely to be useful to a physician, and of a nature to make it a useful work for his table. "The Year's Work" relates chiefly to some of the advances in therapeutics. The "Index of Journals Referred to" would be better if it gave the address of the publisher and price of subscription. The "Health Resorts" are European. The "Sanitary Memoranda" are good. "Medical Education" is calculated to be of service to many British students, and the sections relating to Hospitals and devoted to a Medical Gazetteer are of local interest. There are many tables and items of information, which are of general application, however, and the book must supply a want.

GRUNDRISS DER PHARMAKOGNOSIE. Von F. A. FLUECKIGER. 8vo. Berlin: R. Gaertner's Verlagsbuchhandlung (Hermann Heyfelder). 1884.

THIS "Outline of Pharmacognosy" from the pen of the most competent authority is chiefly intended for beginners, but may also be profitably consulted by all who desire to put themselves "au fait" regarding all essential and important physical and chemical characteristics of the officinal and most commonly used unofficinal drugs, without having to search in a more detailed work. While the larger work on the same subject, by Prof. Flückiger, arranges the drugs in classes according to their similarity *as drugs*, this smaller work treats of them in the order of the natural families, which Prof. F. finds also more convenient in teaching and lecturing on the subject than the other. The animal drugs, which are excluded in the larger work, are added in the present.

In view of the large extent of the field and the great number of facts to be considered, the text is as full and complete as could be expected.

The author has accomplished a difficult task in selecting from the immense number of facts to be considered, those which are of paramount weight and importance. In doing so he has been uniformly successful. We can recommend the work to all students of pharmacy or medicine able to read German and have no doubt that it would be highly appreciated in an English garb.

WURTZ'S ELEMENTS OF CHEMISTRY. By ADOLPH WURTZ (Senator), etc. Second American Edition. Translated and edited, with the Approbation of the Author . . . by WM. H. GREENE, M.D., Professor of Chemistry in the Central High School, Philadelphia, Memb. of the Am. Philosoph. Soc., of the Chem. Soc. of Paris and Berlin, etc. (132 ill.). 8vo. London and Philadelphia: J. B. Lippincott & Co. 1884.

IN noticing the first edition of Wurtz's chemistry (NEW REM., 1879, 247), we already drew attention to various distinguishing features of this text-book of chemistry. The issue of a second edition, in these days of innumerable "chemistries," is a sure sign that the work is appreciated and used in practice. Unfortunately the illustrious author has been called away from our midst quite recently, and the pen which wrote the original is now still; nevertheless, we are quite sure that, like many other of Wurtz's works, this text-book, so ably edited by Dr. Greene, will live long and exert its proper measure of influence upon the learning generation.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,284.—**Albuminate of Iron** (J. S.).

In our volume for 1880 (NEW REM., 1880, p. 210) we gave an abstract of a paper by Professor C. Lewis Diehl, together with a working formula, which we repeat here.

Ten troy ounces of white of egg are diluted to 20 fluidounces with distilled water, a solution of 125 minims of solution of chloride of iron, U. S. Ph., in 10 fl. oz. of water is added, and the solution filtered. To the filtrate are added 10 fl. oz. of a saturated solution of common salt, the precipitate which is produced collected on wetted muslin, washed with a dilute solution of common salt (1 volume of saturated solution of NaCL, and 3 volumes of water), drained, powerfully expressed and dried. The resulting product, dry albuminate of iron, amounts to a little over 12 per cent of the white of egg used, on an average.

A recent formula published by Mr. O. Schlickum is as follows:

Fresh white of egg	100 parts.
Solution of chloride of iron, Germ. Ph.	5 "
(Equivalent to Solution of chloride of iron, U. S. P.	3.83 ")
Water	100 "

Dilute the white of egg with the water, allow to settle, pour off and strain the liquid portion, and add the solution of chloride of iron. Shake the mixture thoroughly and warm it gently until it has become clear. Then evaporate it at a temperature not exceeding 40° C. to a syrupy consistence, spread it in a thin layer upon plates of porcelain or glass, and dry it completely at a gentle heat.

The product is in form of yellow scales, or a yellow, dry powder, which keeps unaltered even when exposed to air, and yields a turbid, yellowish solution with hot water.

It contains nearly 4 per cent of iron.

Mr. Schlickum adds the following comments:

The ferric chloride forms with the white of egg a coagulum which is easily dissolved by hot water. If both substances are used in the above-named proportion, neither of them will be in excess. If an excess of ferric chloride is used, the product is soluble to a clearer liquid. The object of diluting the white of egg with water is, to aid in removing the cell membranes; the latter remain behind on the strainer.

The yield of product is 13 to 14 parts.

Schlickum assigns to it the problematical formula:

$$(C_{72}H_{112}N_{18}O_{21})_2.Fe_2O_3$$

Hirsch (in Supplem. zur zweiten Ausg. der Pharm. Germ.) gives the following process:

Mix 10 parts of white of egg with 40 parts of water, and strain. Shake the strained liquid first with 30 parts of a saturated solution of chloride of sodium, and afterwards with a mixture of 9 parts of solution of chloride of iron (Germ. Pharm., spec. gr. 1.281). Set the mixture aside for twelve hours, in a cold and dark place; then add 300 parts more of water, shake again energetically, allow to settle, collect the precipitate upon linen, wash it with water, press, and dry.

Hager prepares it in a similar manner, but adds to the still moist product such a proportion of sugar that the dry preparation contains about 1 part of albuminate of iron and 9 parts of sugar.

No. 1,285.—**Preparation of Cantharidin** (W. A. S. & Co.).

The following is one of the methods by which the active principle of cantharides may be extracted:

Coarsely powdered cantharides are extracted in a percolator, by means of chloroform; the chloroform is distilled off on the water-bath, and the residue repeatedly treated with disulphide of carbon, for the purpose of removing the adhering green oil. The residue is then dissolved in alcohol treated with a little animal charcoal, the solution filtered and evaporated to dryness in a retort. The residue is dissolved in the smallest possible quantity of chloroform, with the aid of a very gentle heat, and the solution allowed to evaporate spontaneously, so as to crystallize.

Yield, up to 0.6 per cent.

Properties. Cantharidin has the composition $C_{10}H_{12}O_4$ (mol. w. 196). It appears in form of colorless and odorless neutral, shining, rhombic lamallæ, which melt at 210° C., and when further heated, sublime in form of fine, white needles. It slightly volatilizes already with the vapor of water. It is soluble in about 3,330 parts ofalcohol (spec. gr. 0.820), in 1,660 parts of disulphide of carbon, in 900 parts of ether, in 500 parts of benzin, and in 83 parts of chloroform. In water it is almost insoluble, more readily soluble in glacial acetic acid, acetone, acetic ether, fatty and ethereal oils, and particularly in formic acid. When heated with potash, soda, or ammonia, it takes up water and is converted into cantharidic acid, which forms easily soluble salts with bases, from which the cantharidin again separates on the addition of an acid.

The vesicating power of cantharidin is from 200 to 250 times greater than that of cantharides.

A practical way of applying it is in form of collodium, which latter dissolves it without difficulty. Or, a small quantity may be intimately triturated

with oil, and afterwards combined with some plaster.

No. 1,286.—**Kairine** (Several inquirers).

In addition to what we have previously published on this new febrifuge (see our March number, page 54, where reference is also made to previous articles), the following description and requirements of purity, which are given by Dr. Hirsch in his Supplement zur 2ten Ausg. der Pharmacopœa Germ. will be found of especial interest.

Kairine.

$C_{11}H_{11}ON.HCl = C_6H_6(OH)(N.C_2H_5), HCl = 213.5$

Kairine, which has of late rapidly acquired a reputation as an antipyretic, is, chemically speaking, the hydrochlorate of ethyl-hydro-oxy-quinoline [or -chinoline]. It is prepared by treating *quinoline* (itself prepared by heating a mixture of aniline nitrobenzol, glycerin, and sulphuric acid) with fuming sulphuric acid, whereby it is converted into *quinoline-sulpho-acid* $C_9H_6(SO_3H)N$. This substance is fused with soda and converted into *oxy-quinoline* $C_9H_6(OH)N$. By treatment with hydrogen in a nascent state, the latter takes up four atoms of hydrogen, and is converted into *hydro-oxy-quinoline*, $C_9H_8(OH)(NH)$. Next, the hydrogen of the NH-group is replaced by ethyl, C_2H_5, which produces *ethyl-hydro-oxy-quinoline*, $C_6H_6(OH)(N.C_2H_5)$, and this is finally converted into a hydrochlorate. The resulting salt has been named, for short, *kairine*.

Kairine forms colorless and odorless, small, rather thick prisms of a saline, then pungent, camphoraceous and cooling taste, which persists for a long time. It is soluble in cold and warm water, less soluble in alcohol; nevertheless the concentrated aqueous solution is not rendered cloudy by the addition of alcohol nor by the subsequent addition of ether. The solution becomes gradually oxidized and colored on exposure to air; hence kairine should only be dispensed in a *dry* form, either in powder or in wafer-capsules. If it must be given in solution, it should, at all events, be dissolved in water or in wine only just before it is taken. When cautiously heated, kairine volatilizes sometimes with decrepitation, already before it melts; at a slightly elevated temperature it melts, turns brownish, gives off inflammable vapors, and leaves behind an easily combustible ash. The vapors have a faintly aromatic odor, and affect neither the eyes nor the air-passages.

Carbonate of sodium produces, in the aqueous solution of kairine, a copious white precipitate of ethyl-hydro-oxy-quinoline, which cakes together, on shaking, to cheesy flakes, rendering the liquid clear. These flakes, when warmed, melt to small, clear, colorless drops, which shortly afterwards change into small crystals, melting at 74°–75° C., and acquiring a brown color on exposure to air. With nitrate of silver, kairine yields an immediate precipitate of chloride of silver, becoming black after a short time. Towards hydrosulphuric acid and sulphide of ammonium it is indifferent. Ferric chloride colors its solution brownish-red. In the solution, acidulated with sulphuric acid, ferrocyanide of potassium produces a crystalline precipitate, soluble in much water. The neutral solution of kairine is colored yellow by bichromate of potassium, this color afterwards changing to brown, dirty-green, and afterwards bluish-violet.

The acidulated solution of kairine is colored blood-red upon the addition of nitrite of potassium, but no immediate precipitate is produced. If, however, any traces of hydro-oxy-quinoline are still present in it, an immediate precipitate is produced by the nitrite.

Kairine may be contaminated by a poisonous ammonium base having the composition $C_6H_6(OH)[N(C_2H_5)_2Cl]$, which may be detected by precipitating the aqueous solution with soda, filtering, shaking the filtrate with ether (to remove any remaining traces of ethyl-hydro-oxy-quinoline), concentrating the aqueous liquid by evaporation, and treating with diluted sulphuric acid and ferrocyanide of potassium, whereby a white precipitate is produced if the above poisonous base is present.

No. 1,287.—"**Capuchin**" **Liquor** (M. S.).

A preparation of this kind is known in Europe. It is a sort of "Bitters," and is said to be prepared according to the following formula:

Celery root, fresh	10½	oz.
Orange peel, bitter	9	"
Lemon peel, fresh	9	"
Cinnamon, ground	7	"
Staranise, "	2½	"
Caraway, "	2½	"
Galangal, "	2½	"
Nutmeg, "	2½	"
Cubebs, "	1	"
Cardamom, "	1	"
Calamus, "	1	"
Alcohol, 60%	6	gall.

Mix and distil off 18 quarts (which will contain about 72% of alcohol). To the distillate add

Water	4½	qts.
Syrup	13¾	"

Color it light-brown with caramel.

No. 1,288.—**Marine Glue, Liquid or Solid** (M. J. & S.).

"Liquid Marine Glue" is a compound prepared by digesting 1 part of finely cut caoutchouc, during about 10 to 14 days, with 10 parts of oil of turpentine at a very gentle heat, and under frequent agitation.

This liquid is used for rendering wood, ropes, tissues, etc., water-proof, by applying one or more coats.

What is usually known as "Marine Glue," without the distinction "liquid" or "solid," is prepared by proceeding exactly as stated above, and then, adding to the solution 2 parts of shellac, or better, of asphalt (for every 1 part of caoutchouc employed). The mixture is heated in an iron pot until it has become completely homogeneous, and does not give off volatile vapors. During the heating the mass must be carefuly stirred, and the temperature should not be allowed to exceed 140° C. (284° F.). It is then poured out into capsules. For use, one of the latter is heated on a water-bath until the contents are melted, when it is transferred to a sand-bath, and cautiously heated to near 140° C. The edges to be cemented together must be warmed, coated with a thin layer of the marine glue, and then firmly stuck together.

No. 1,289.—**Stamping Ink** (Utilis).

A good ink for rubber stamps may be prepared thus:

Solid Aniline color	16	parts.
Boiling, distill. water	80	"
Glycerin	7	"
Syrup	3	"

Dissolve the proper aniline color in the boiling water and add the other ingredients.

It is usual to select either black, blue, or violet, or red aniline colors. Any dealer in colors will know what kinds are suitable. They must be water-soluble, of course. Nigrosine, methyl-blue, Hoffmann's violet, methyl-violet, and eosine are probably the best for general use.

A good stamping ink should not dry quickly upon the pad, but on the other hand, should dry rapidly when applied by the stamp to paper.

No. 1,290.—**Oil of Hyoscyamus** (Nashville).

Several European pharmacopœias, as for instance the German, contain formulæ for the preparation of this oil, which is nothing else but a solution of chlorophyll and other constituents of the fresh plant (including some of its active principle) in olive oil. These preparations are very old. The formula is as follows:

Oleum Hyoscyami.

(or Oleum Hyoscyami coctum).

Hyoscyamus, cut, *four parts*	4
Alcohol, *three parts*	3

Macerate a few hours; then add

Olive Oil, *forty parts*	40

and digest, on a steam-bath, stirring occasionally, until the alcohol is evaporated. Finally express and strain.

The product should have a brownish green color.

No. 1,291.—**Soothing Syrup** ("Aloes").

Some years ago, Dr. Hager published an analysis of Mrs. Winslow's Soothing Syrup, according to which it contained:

Syrup	8 parts.
Tincture of fennel	1 part.

The latter is prepared, according to Dr. Hager, by extracting ten parts of freshly-ground fennel with sixty parts of ninety per cent alcohol, and the addition of one part of oil of fennel.

Whether the sample Dr. Hager analyzed was specially "prepared" for him, we cannot say. At all events, others have reported that the preparation contains morphine (about one grain to the ounce) or opium in some form. Others, again, have found it absent. We have never analyzed it ourselves.

The Editor has, however, been informed by one who is intimately acquainted with the proprietor and manufacturer of "Mrs. Winslow's Soothing Syrup," that he has repeatedly been assured by Mr. Curtis that morphine has never entered into its composition. There is quite as much probability that the specimens found to contain morphine were fraudulent, as that the salt is introduced by the rightful owners of this article.

No. 1,292.—**Distinction between Blue Coloring Matters** (M.).

This correspondent desires to know how he may distinguish between wash-blue made from indigo and that made from Prussian blue; also between the different kinds of blue ink; or between the different blue coloring matters in general.

A short, practical method is that proposed by Bolley and supplemented by Gawalovski. In the following scheme, the behaviour of each coloring matter towards 1, hydrochloric acid (HCl); 2, caustic soda (NaHO), and 3, red heat is recorded. Only the more common blue coloring matters are noticed.

Aniline blue.

1. (HCl.) Unchanged in dilute acid; in concentrated acid greenish-blue, resuming its original tint when diluted.
2. (NaHO.) Becomes violet to flesh-colored, depending on the original tint.
3. (Heat.) Only trifling ash.
4. Chloride of lime destroys color gradually; permanganate of potassium and sulphuric acid decolorize.

Blue Ink.

Evaporate, and treat residue as stated under the several colors.

Indigo.

1. (HCl.) Unaltered when touched with the acid.
2. (NaHO.) Yellowish-brown; turned blue again by acids.
3. (Heat.) Leaves much ash.
4. Nitric acid decolorizes it. It is soluble in water.

Litmus and other Lichen-blues.

1. (HCl.) Turns red; is partly dissolved.
2. (NaHO.) Unchanged, or turning rather more intensely blue.
3. (Heat.) Destroys the color. But

as the coloring matter is usually fixed upon a very large proportion of gypsum, all the latter remains as ash.

4. Soluble in water; less so than indigo.

Ultramarine.

1. (HCl.) Destroyed, with evolution of hydrosulphuric acid gas.

2. (NaHO.) remains unchanged.

3. (Heat.) Color disappears; most of the substance remains as ash.

Wash-Blue.

Evaporate and treat residue as stated under the several colors.

No. 1,293.—**Stoughton Bitters** ("Scruple").

We select the following from our files, as it appears to have more probability in its favor than the others:

Gentian	3 oz.
Serpentaria	2 "
Orange Peel, bitter	2 "
Calamus	½ "
Cardamom	½ "
Red Saunders	1 "
Alcohol	q. s.
Water	q. s.

Reduce the solids to a moderately fine powder, moisten them with a mixture made from 2 volumes of alcohol and 6 volumes of water, pack in a percolator, and percolate until 1 gallon of liquid is obtained.

According to some, the red saunders is omitted, and the percolate colored with carmine coloring and caramel.

No. 1,294.—**Chlorodyne** (Ana).

There are perhaps thirty or forty formulæ published, all of which pretend to produce a compound similar to the original. Yet many of them apparently are far from the intended object. When we were engaged in the preliminary revision of the U. S. Pharmacopœia, we obtained a compilation of all known published formulæ, and arrived at the conclusion that the formula which comes nearest to the original is probably that of Squire. But even this contained some incongruities, as, for instance, powdered extract of licorice which is not wholly soluble in the liquids; hence, we recommended a slight change, and proposed the following formula (in *Report on the Revision of the U. S. Ph.*, New York, 1880, page 82):

	Parts
Hydrochlorate of Morphine	1
Oil of Peppermint	2
Stronger Ether	40
Alcohol (0.820)	48
Molasses	80
Diluted Hydrocyanic acid	114
Fluid Extract of Licorice	150
Purified Chloroform	330
Simple Syrup	1,235
Total	2,000

The resulting product, however, differs materially, both in appearance and taste, from the original. Yet it possesses the merit of being made after a known formula.

Dr. J. H. Gilman, of Lowell, Mass., some years ago, proposed the following, in which the ingredients form a perfect solution, and which can be diluted with 10 parts of water without separation:

Chloroform	2	fl.oz.
Ether, stronger	½	"
Alcohol (0.820)	8	"
Oil of Peppermint	24	min.
Tincture of Capsicum	6	fl.dr.
Tincture of Card. Co.	2	fl.oz.
Fluid Extract of Licorice	2	"
Diluted Hydrocyanic Acid	1	"
Glycerin	16	"
Sulphate of Morphine	40	grains

Mix in the order quoted, and shake until dissolved.

New Formula.

Some experiments lately made by us have led us to the following formula, which we believe comes closer to the original than any other:

	Parts
Hydrochlorate of Morphine	2
Water	50
Tincture of Peppermint	1
Tincture of Capsicum	1
Ether	2
Chloroform	10
Dilut. Hydrocyanic Acid	114
Fluid Extr't of Licorice	30
Molasses	1,790
Total	2,000

No. 1,295.—**Proof Spirit** (F. F.).

"Proof spirit" is so called from a peculiar crude method by which the strength of alcohol was formerly determined by the British excise officers. A certain amount of the alcohol or spirit was poured on a definite quantity of gun-powder, and a light was then applied. If the spirit was above a certain strength ("proof"), the gun-powder ultimately ignited; but if weaker, the gun-powder was too much wetted by the water mixed with the spirit, and the latter was then said to be "under proof."

According to an Act of Parliament, proof spirit is at present defined, in Great Britain and all its dependencies, to be a liquid of such density that "at 51° F. thirteen volumes shall have the same weight as twelve volumes of water at the same temperature." The "proof-spirit" corresponding to this requirement has a specific gravity of 0.91984 at 15.5° C. (60° F.), and contains 49.24 per cent *by weight* of alcohol and 50.76 of water. Any spirits weaker than the above are said to be "under proof" or "below proof" [U. P.], either by so many degrees or by so much per cent.

Pure water is 100 degrees under proof; proof spirit is 0 degrees. Hence a spirit which is 30 degrees (or 30 per cent) under proof contains, in 100 *volumes*, 70 volumes of proof spirit and 30 volumes of water.

Spirits which are "over proof" are described in a different manner, namely, according to the number of volumes or measures of proof spirit which 100 volumes or measures of it would yield when diluted with water. For instance, spirit of 50° "O. P." is alcohol of such a strength that 100 measures at 60° F., when diluted with water to 150 measures, would produce proof spirit. Absolute alcohol is, therefore 75¼° O. P., and contains "175½%" of proof spirit; since 100 volumes of it diluted with water yield 175½ volumes of "proof spirit."

In the United States, the term "proof spirit" has a somewhat different signification. According to law, "proof spirit shall be held and taken to be that alcoholic liquid which contains *one-half its volume* of alcohol of a specific gravity of seven thousand nine hundred and thirty-nine ten thousandths (0.7939) at sixty degrees Fahrenheit," referred to water at its maximum density. Therefore, proof spirit has, at 60° F., a specific gravity of 0.93353, 100 parts by volume containing 50 parts of absolute alcohol (by volume) and 53.71 parts of water. [The apparent excess in volume of the water is due to the fact that the mixture *shrinks*, and will then form exactly 100 volumes.]

Now, the hydrometers used by government are so graduated as to indicate the number of parts by measure or number of volumes of proof spirit contained in 100 volumes of the spirit tested, at the temperature of 60° F. That is, in pure water, the hydrometer will stand at 0 degrees, in absolute alcohol at 200 degrees, and, in proof spirit at 100 degrees. Absolute alcohol is, therefore, 100 degrees over or above proof; a spirit of 10 degrees (or per cent) over proof, or as it is more commonly called, one of "110 proof" would contain 55 per cent by volume of absolute alcohol.

If you inspect the alcohol tables of the U. S. Ph. of 1880, you will notice that "*proof spirit*" is there interpreted as spirit of a spec. gr. "0.9198," at 60 F. Since the Committee of Revision decided to insert Hehner's Tables, which were the most detailed ones available at that time, it seemed best to copy them exactly, even though the British value for "proof spirit" should be given in it. Nevertheless, a note should have been added, drawing attention to this. According to Hehner's table, calculated mainly upon that of Fownes, the proof spirit of the U. S., defined as having the spec. grav. 0.93353, would contain 50.58 per cent by volume of absolute alcohol; or, to state it differently, proof spirit of the U. S. (containing 50 per cent by volume of absolute alcohol), would have a spec. gr., according to Hehner's tables, of 0.93462, neither of which tallies with the requirements of the U. S. law. This was the reason why the value for the U. S. "proof spirit" was not indicated in the table.

No. 1,296.—**Soda-Mint** (F. F.).

This popular remedy for dyspepsia or heartburn is usually prepared by dissolving

Bicarbonate of sodium . . . 1 oz.
in Peppermint water . . . . . 1 pint,
and filtering.

No. 1,297.—**Theoretical Aids for Compounding Prescriptions** (W. R. S.).

While the practice behind the prescription counter is undoubtedly the best means of acquiring proficiency in the art of preparing prescriptions, provided a well-posted and competent person is in charge of it, who is willing to aid and instruct the beginner, the next best way of acquiring proficiency is a judicious course of reading. Among the works most likely to be useful are: Parrish's "Pharmacy," of which a new edition has appeared only a short time ago; and Proctor's "Lectures on Pharmacy," which, though written for British pharmacists, nevertheless contain a large amount of useful information. If you read German, Hager's "Technik der pharmaceutischen Receptur" will be found extremely valuable. (An interesting extract from the last-named work will be found in this number, see p. 101.)

We could mention many other works, but in none will you be likely to find an answer to *everything* that may puzzle you, or on which you might wish to be posted. Your proper course is to read attentively the best pharmaceutical journals, for instance this present one, and to try and keep yourself posted upon all matters going on in the profession—we mean now scientifically.

Should you come across some item which you desire to have information about, you need only address a note to the Editor of this paper, when your wish will be gratified, as far as possible.

No. 1,298.—**Syrupus Cacao Co.** (D. D.).

There is no standard formula for such a preparation. Each manufacturer may suit his own fancy. As it is used for disguising the taste of quinine, it may be prepared in a manner similar to that of *syrupus caffeæ* of the New York and Brooklyn Formulary, which you probably possess. The formula would then be:

Cacao, roasted, finely ground	8 av. oz.
Sugar	24 av. oz.
Boiling water	q. s.

Upon the cacao, packed tightly in a percolator, pour gradually successive small portions of boiling water, until 16 fluidounces of percolate are obtained. In this dissolve the sugar, without heat, and strain.

The fresher and finer the cacao is, the better will, of course, be the product. We presume that a little vanilla would make the flavor more agreeable.

Probably the very best vehicle for covering the taste of quinine is the *Elixir Taraxaci compositum* of the Formulary quoted above.

No. 1,299.—**Sanitas.**

We had an inquiry recently about an article called "Sanitas oil," used in dentistry. Although we made diligent search and consulted prominent houses we were unable to place it. Perhaps some of our readers have heard of it.

Under the name "Sanitas," an antiseptic liquid was introduced in Europe some years ago, which was said to consist of water in which some peroxide of hydrogen and traces of carbolic acid and of oil of turpentine were dissolved. It was (and is?) prepared, according to Kingzett, by conducting through a series of twenty to thirty earthen vessels, containing 80 gallons of water and 1½ gallons of oil of turpentine, a current of air during a long time (about 300 hours. The current is made to enter the vessels at the point where the two liquids touch each other. The liquid is finally filtered. It is said that meat, fish, and other articles of food treated with "Sanitas" may be preserved fresh for months.

No. 1,300.—**Chemical News** (S.).

This is an old-established and flourishing journal, published in London. Office, 42 Cannon street.

No. 1,301.—**Pharmacy Laws** (S.).

Your query "What other States have passed pharmacy laws similar to that lately passed for Ohio?" is one that cannot be answered point-blank. All pharmacy laws differ more or less from each other, and it would be a tedious task to prepare a synopsis of all those points in which they coincide, and those in which they differ. We think that the best way for you to find an answer to the query would be to consult the annual volumes of the Proceedings of the American Pharmaceutical Association, in which there is a special annual report (since 1871) on Legislation. and in this report copies of all pharmacy laws passed since then are published, namely, those for District of Columbia, Kentucky, Maine, New Jersey, Nova Scotia, Baltimore, San Francisco, South Carolina, New Hampshire, Province of Quebec, St. Louis, Ohio, Rhode Island, Maryland, Pennsylvania, New York City, Kings County (N. Y.), Iowa, Connecticut, Georgia, West Virginia, Wisconsin, Illinois, Missouri, and North Carolina. Some other States, as for instance Delaware and Ohio, have since then passed similar laws. Besides regular "pharmacy" laws, the reports above referred to contain various "poison laws," laws against adulteration of food and drugs, and others affecting pharmacists.

Warner's Safe Kidney and Liver Cure is said to be made after a formula to which the following is a close approximation:

Hepatica (herb).	1 ℥
Boiling water	1 pint.

Make an infusion, strain, and dissolve in it:

Extr. of taraxacum.	½ ℥
Nitrate of potassium.	320 grs.

Cool, and add [the following mixture]:

Alcohol.....	2½ fl. oz.
Glycerin	1½ "
Ess. of Gaultheria..	40 drops.
Water, enough to make.....	1 pint.

This formula is furnished by a correspondent of the *Deutsch-Amerikanische Apotheker Zeitung* (in No. 5 of 1884). Since the directions in the last line, to add enough water to make one pint, might be construed to imply that the whole finished mixture is to measure one pint, and this is obviously impossible, we have ventured to add the words in brackets, believing that the author intended to add the pint, resulting from mixing the last four ingredients, to the liquid previously prepared.

Formulæ Wanted.

Correspondents inquire after the composition or formula of:

1. *Griswold's Salve*, which "contains soap and red lead as portion of the constituents."

2. *Oriental Tooth Paste*, such as that made in Manchester, England.

[The attention of correspondents is called to our remarks on page 98 of last number, first column, top.]

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

Triturating Machine. 296,816.—F. A. Boericke and George Goll, Philadelphia, Pa.

Jug-Packing Box. 296,819.—L. H. Bradley, Springfield, Ill.

Capsule Machine. 296,844, 296,845, 296,846, 296,847, 296,848.—John Krehbiel, Detroit, Mich., assignor to the Globe Capsule Co., and H. J. Milburn, same place.

Process of Making Zinc Sulphide and Anhydrous. 296,858.—T. Macfarlane, Montreal, Can., assignor of one-half to A. Ramsay.

Capsule-Stripping Machine. 296,895.—W. A. Tucker, New York, N. Y.

Demijohn or Bottle Safe. 296,903.—I. B. Wollard, San Francisco, assignor to the Oakland Glass Works, Oakland, Cal.

Apparatus for Dispensing and Drawing Liquids. 297,221.—L. Bergen, New York, N. Y.

Cork Screw. 297,232. — T. Curley, Troy, N. Y.

Perfumery Stand. 297,235.—V. Demuth, Brooklyn, N. Y.

Syringe. 297,263.—J. B. Hunt, Delaware, Ohio.

Machine for Moulding Gelatin Capsules. 297,318.—W. A. Tucker, New York, N. Y.

Capsule Machine. 297,380.—J. H. Glover, Detroit, Mich.

Air Medicator and Injector. 297,427.—B. McGregor, Covington, Ky.

Inhaler. 297,769. — J. N. Dodge, Springfield, Mass., assignor of one-half to S. J. Gordon, same place.

Capsule Machine. 297,792. — A. B. Hall, Indianapolis, Ind.

Manufacture of Medicated Lozenges or Tablets. 297,800.—A. W. Holway, Boston, Mass. A tablet or lozenge consisting of sugar, cream of tartar, and acid phosphate.

Surgical Aspirator. 297,989.—C. B. Hardin, Independence, Mo., assignor of two-thirds to Jesse W. Clemens and John W. Clemens, same place.

Vessel for Containing Aerated Liquids. 297,992.—J. P. Haskins, Saratoga Springs, N. Y.

Process of Preparing Medical Compounds. 298,000. — H. C. Lawrence, Chicago, Ill. A compound composed of spirit, balsam of tolu, syrup, and water; the method of retaining and blending a maximum amount of tolu by heating the alcohol, then adding the tolu and boiling water, and then clarifying the same with carbonate of lime.

Combined Bottling and Shipping Can. 208,023.—C. R. Peaslee, Louisville, Ky.

Bottling Machine. 298,060.—J. C. Blair, Louisville, Miss.

Machine for Forming Pills. 298,148.—A. H. Wirz, Philadelphia, Pa.

Process of Dissolving Metals in Ammoniacal Solutions. 298,149.—C. R. Alder Wright, England.

Soda Water Apparatus. 298,161.—A. Bertelli, San Francisco, Cal.

Bottle Holder. 208,233.—E. R. Richards, Sheboygan, Wis.

Process of Obtaining Soda. 298,256.—J. Townsend, Glasgow, Scotland.

Machine for Making Pills, Tablets, etc. 298,328.—A. H. Wirz and A. V. W. Rausch, Philadelphia, Pa., said Rausch assignor to said Wirz.

ASSOCIATION AND COLLEGE NOTES.

New York.—The Albany and Greenbush pharmacists held a meeting on April 18th, at which twenty-seven gentlemen were present.

Resolutions were passed, indorsing the Campion plan, and a committee of five was appointed to receive and forward to the proper person, complaint of any party or parties selling listed goods at less than the established rates. The committee appointed were A. B. Huested, H. B. Clement, W. S. Elmendorf, Herman Alsberg, Wm. Palmatier.

The New York Protective Association of Drug Clerks held a meeting at the College of Pharmacy, on the evening of April 25th. The President appointed Mr. M. Rafter to fill the vacancy on the Committee of Relations between Pharmacists and Clerks, and Mr. Henry A. Salmon was elected to the Committee on Pharmaceutical and Scientific Interests in place of Messrs. Chapin and Van Horn, resigned. Mr. Roberts stated that the Board of Pharmacy had for the past two years been taking in fees without knowing whether such action was legal. He also stated that the Pharmacy Law was without effect, as the Penal Code had so changed it as to leave no penalty attached to its violation, and that before any convictions could be obtained a new Pharmacy Law must be passed.

The President, Mr. Roberts, then presented his resignation for immediate action, owing to his no longer being a drug clerk, but at the unanimous request of the meeting he was persuaded to withdraw it. The meeting adjourned to meet Wednesday evening, May 21st.

The druggists of Hudson held a meeting in that city April 25th, and formed a union to include every druggist of Columbia County. The essential features of the constitution and rules of the New York Druggists' Union were adopted.

At the special meeting of the New York German Apothecaries' Society, held May 8th, in Beethoven Hall, it was decided to hold the meetings of the society, hereafter, in Schmenger's Hall, Third avenue, between 16th and 17th streets. Mr. Bischof, on behalf of the Committee on Combustible License, reported that the suit commenced against Mr. Müller had been decided

in his favor, but that the Fire Commissioners had appealed.

Mr. Ruprecht paid a proper tribute to the two deceased members of the society, Messrs. Lehlbach and Hebberling.

The Kings Co. Pharmaceutical Society held its regular monthly meeting at Granada Hall, Brooklyn, May 13th, at 3 P.M.

The New York City and County Pharmacy Bill has been defeated. The Judiciary Committee took the ground that sufficient power was granted by existing laws to successfully conduct prosecutions against violators of the pharmacy laws of 1872, and that if the authorities did not take advantage of that, it was not the fault of the law.

The American Chemical Society held its May conversazione on Friday, May 16th, at the University Building, New York.

The meeting of the State Pharmaceutical Association, for the first time in New York City, will be on the 10th, 11th, and 12th of June, and extensive preparations are being made to render it especially attractive. It is probable that a large proportion of the 600 members will be present, and these, with the pharmacists of the neighborhood, will doubtless make it one of the largest meetings of pharmacists that has been held for some time. Messrs. Gustavus Balser, H. W. Atwood, T. J. McMahan, and W. A. Gellatly are the Committee of Arrangements.

Massachusetts.—The Massachusetts College of Pharmacy held its sixteenth annual commencement exercises in Boston on Friday evening, May 2d. President Henry Canning made the introductory remarks, and was followed by H. Sugden Evans, F.R.S., etc. Prof. Bolles, M.D., delivered the valedictory on the part of the Faculty, and Mr. F. E. Lovell on the part of the students. The following is the list of graduates: W. E. Cates, W. A. Chapin, Charles J. Countie, C. O. Currier, Frank T. Dudley, Daniel Emerson, Chas. H. Goldthwait, G. Y. Hutchins, J. O. Jordan, E. G. W. Kraushaar, F. E. Lovell, C. F. Nixon, W. B. Shaw, Frank O. Warner.

The prize students were: Charles F. Nixon, Frank O. Warner, Fred. E. Lovell, Charles O. Currier. John H. Geer, Ph.G., passed a satisfactory examination in practical and analytical chemistry as an elective.

At the annual meeting of the Alumni Association of the Massachusetts College of Pharmacy, held on the evening of May 4th, the following officers were elected for the ensuing year: Geo. M. Hoyt, *President;* Henry Thacher and Linville H. Smith, *Vice-presidents;* J. H. Greer, *Secretary;* John G. Godding, *Treasurer;* H. K. Appleton, *Auditor.* There will be no meetings during the next eleven months.

The druggists of Fall River have adopted the Campion plan, and from May 5th agree to charge the fixed prices.

The Worcester (Mass.) Pharmaceutical Association, at a special meeting held May 2d, unanimously adopted the following resolutions:

"*Resolved*, That we heartily indorse the Campion plan, and pledge ourselves to sustain the full retail prices fixed by those manufacturers who have adopted said plan, or who shall at any time hereafter adopt the same.

"*Resolved*, That we will encourage the sale of all articles on the Campion list to the exclusion, so far as possible, of the preparations of those manufacturers who are not disposed to help us to obtain a living profit.

"*Resolved*, That we will keep in stock preparations which are not on the Campion list only so far as we are obliged to, and in limited quantities, to meet the current demand."

The State Pharmaceutical Association will hold an exhibition of chemicals, pharmaceutical products, and appliances at its next annual meeting, in Lowell, Wednesday and Thursday, June 4th and 5th. Mr. C. L. Brock is the local secretary.

The Local Committee intend to devote the afternoon of Wednesday to the social relations of the meeting, and every effort will be made to render the occasion an attractive one for those who may be able to attend.

Pennsylvania.—The graduates of the Pittsburgh College of Pharmacy formed an alumni association on March 29th. The following were elected officers: C. H. Beach, *President;* John Wurzell and Samuel McElroy, *Vice-presidents;* A. C. Robertson, *Treasurer;* W. S. Jones, *Recording Secretary;* D. F. Robinson, *Corresponding Secretary;* H. J. McBride, George Fry, J. A. Shafer, and George Haering, *Executive Committee.*

The druggists of Alleghany County, on May 1st, organized a society under the name of "The Alleghany County Retail Druggists' Protective Association." The following were elected officers: G. Eisenbies, *President;* A. H. Wilson and J. P. Urben, *Vice-presidents;* Louis Emanuel, *Secretary;* S. S. Holland, *Treasurer.*

The Dauphin County Pharmaceutical Association, at its annual meeting, held May 13th, elected the following officers: J. H. Boher, *President;* H. D. Dietrich, *Vice-president;* Dr. J. A. Miller, *Secretary;* Dr. G. H. Markley, *Treasurer.* The election of Delegates to the State Pharmaceutical Association resulted in the choice of Dr. G. H. Markley, H. D. Dietrich, and G. A. Gorgas.

Wisconsin.—The State Board of Pharmacy met in regular annual session at the Park Hotel, Madison, Tuesday afternoon, April 22d, at 2 o'clock. The full Board was present. Nineteen applicants presented themselves for examination for certificates to practise pharmacy in the State. The following received full certificates entitling them to practise as proprietors: Harry Enckhausen, Kenosha; L. T. Menke, Beaver Dam; John Rosch, Chicago; Wm. E. Williams, Dodgeville; O. H. Anger, Milwaukee; E. E. Pets, Stoughton; W. C. Draper, Milwaukee; J. M. Evans, M.D., Evansville; C. E. French, Fond du Lac; J. E. Barnstein, Sheboygan; H. H. Myers, New London. The following received second-grade certificates, allowing them to practise as clerks: E. Ramsland, Viroqua; W. H. Aldrich, Baraboo; Charles Wren, Janesville; E. E. Travers, Janesville. Four candidates failed to pass the examination successfully.

At the regular business meeting, a new Board was formed, with the following officers: A. H. Hollister, *President,* Madison; E. B. Heimstreet, *Secretary,* Janesville. The Board then adjourned, to meet at Fond du Lac, June 18th, the examination of applicants for certificates to begin the following day.

The Secretary reported that during the year ending April 1st, 1884, five meetings were held, and eighty-eight applicants were examined. Fifty-four were granted full certificates, twelve minor certificates, and twenty-three were rejected. Thirteen registered. Twelve graduate, twelve minor, and two assistants' certificates were granted. The total number of full certificates in the State is one thousand and sixty-one; minor, forty; assistants', one hundred and ninety-two.

Rhode Island.—At the special meeting of the State Pharmaceutical Association, held at Providence, April 16th, resolutions were passed by those present, agreeing to charge the price fixed by the Campion plan, from April 21st, 1884, on all medicines included on their list, and fifty-two pharmacists personally agreed to the above.

At the special meeting of the same association, held in Providence on Wednesday, April 30th, the following were elected members of the Association: E. W. Barrows, C. A. P. Mason, and George Calder, of Providence; S. F. Fisk, J. H. Pander, and E. H. Gridley, of Pawtucket.

Rhode Island has now a law exempting registered pharmacists and registered assistant pharmacists from serving as jurors.

The Rhode Island Chemists' and Drug Clerks' Association held their annual election at the Society's rooms in Providence on May 13th.

The following were elected for the ensuing year: *President,* E. E. Calder; *Vice-President,* J. D. Paterson; *Secretary,* A. O. Hull; *Treasurer,* H. A. Pearce; *Librarian,* F. H. Wilcox; *Executive Committee,* A. H. Storey, C. L. Angell, A. W. Howe, E. E. Calder, C. A. Glancey; *Auditing Committee,* S. J. Briggs, C. E. Card, F. L. Lothrop; *Library Committee,* J. J. S. Peterson, W. W. Devon, J. A. Reaves. Two new members were elected. The meeting adjourned to Friday, June 6th.

This Association gave their annual supper at the Café St. George, in Providence, on Friday evening, May 2d.

Georgia.—The State Pharmaceutical Association has elected the following officers for the ensuing year: S. C. Durban, *President;* J. M. Standford, S. J. Cassels, and H. K. Main, *Vice-Presidents;* I. Zacharias, *Secretary;* T. E. Massenburg, *Treasurer;* and W. A. Lawless, *Local Secretary.* Delegates to the N. R. D. A. and the A. P. A. are John Ingalls, Macon; J. W. Rankin, Atlanta; J. W. Standford, Cuthbert; I. Zacharias, Columbus; W. A. Taylor, Atlanta.

Indiana.—The annual meeting of the State Pharmaceutical Association was held at Evansville, May 13th. Ex-President G. H. Andrews called the meeting to order.

The officers elected for the ensuing year were as follows:

President, W. L. Johnson, Evansville; *Vice-Presidents,* George Eliel, South Bend; Theo. Gasser, Troy; W. H. Ross, Richmond; *Secretary,* P. R. Perry, Indianapolis; *Treasurer,* Emil Martin, Indianapolis; *Executive Committee,* S. Muhle, Indianapolis; R. C. Smith, Crawfordsville; C. V. Pyle, Warsaw.

Ohio.—The State Board of Pharmacy met at Columbus, April 8th, for the purpose of organizing. Mr. John A. Nipgen, of Chillicothe, was elected *President,* Mr. E. M. Hatton, of Zanesville, *Vice-President,* and Mr. Philip H. Bruck, of Columbus, *Secretary* and *Treasurer.* The above-mentioned, with Mr. F. F. Bower, of Toledo, constitute the Board.

The Secretary is prepared to receive applications for registration from those who are entitled to register without examination. Blank applications will be mailed to any person who will address the Secretary, Mr. P. H. Bruck, No. 24 North High street, Columbus, O., inclosing two-cent stamp.

The State Pharmaceutical Association is to meet on May 27th and 28th, in the Exposition Building of Cleveland. The Local Secretary is Mr. W. J. Martin, Seventh and Elm streets. At this meeting the ratification of the new Pharmacy Law is to be considered.

Virginia.—The Norfolk and Portsmouth Pharmaceutical Association held its regular meeting on Tuesday evening, April 15th.

Resolutions were unanimously adopted, thanking those manufacturers who had agreed upon a plan to protect the

retail dealers, and promising to push the preparations of such manufacturers.

ITEMS.

Mr. John H. Ruckel, of the well-known drug firm of Hall & Ruckel, and later of the firm of Ruckel & Hendel, of New York City, died of typhoid fever on the 17th of April.

Peter Squire, who is best known in this country through his Companion to the British Pharmacopœia, died in London on the 6th of April. The *Chemist and Druggist*, to which we are indebted for the portrait adjoining, says of him:

"Very few of us can recall the days of English pharmacy when 'Peter Squire' was not a representative name among us. He has been a prominent pharmacist for nearly fifty years, and has done so much good work for pharmacy that in our annals he will always be quoted as one among the group of men who revolutionized the business of the chemist and druggist in the nineteenth century.

"Mr. Squire was in his eighty-sixth year when death overtook him. He had worked vigorously in his youth and throughout his prime, and in his later and more restful years he was far from idle. Only last year he worked up a valuable paper on the best method of preserving the fresh-water medusæ found in the *Victoria Regia* tank at the Botanical Garden. A short time previously, in association with Dr. Redwood, he had prepared a report for the committee of the International Pharmaceutical Congress on the proposed International Pharmacopœia. Within the past ten years he had supervised and edited three or more editions of his 'Companion to the Pharmacopœia.'

"Mr. Squire was born in Bedfordshire in 1798; was educated at Apsley School, and at the age of fourteen was apprenticed to a chemist and druggist in Peterborough. Though his hours of work were from 7 A.M. to 11 P.M., he studied botany practically before business began, and acquired a sound knowledge of that science. Going to London, he entered the wholesale house of Wilson, Minshull & Co., and afterwards served with Hodgkinson, Brandram & Stad, acquiring thus a thorough knowledge of drugs. He next lived with Alexander Gardner, and was for a time his partner. Still later he entered the establishment of Beral, of Paris. In 1831 he bought the business of Mr. John Scott, which had already been established for forty years. Here he soon established a reputation by the preparation of a number of finer extracts than had previously been seen in the English drug-trade. His work attracted the notice of Dr. (afterwards Sir James) Clark, who made many visits *incognito* to Mr. Squire's establishment. One day he sent for Mr. Squire and asked about his reputation and previous experience. Soon afterwards Peter Squire received a prescription for the Princess Victoria, and the next year (1836) he was expressly appointed her chemist. On the Queen's accession in 1837, Peter Squire was officially recognized as her Chemist-in-Ordinary.

"Mr. Squire was one of the founders of the Pharmaceutical Society, served for twenty-seven years as an examiner, and was thrice elected president of the society.

"He contrived the apparatus by which ether was first administered in a capital operation in England (by Mr. Liston at University College Hospital).

The Late Peter Squire.

He assisted Drs. Stevens and Marshall Hall in some of their chief medical investigations, and many other scientific men availed themselves of his scientific skill. His 'Companion to the Pharmacopœia' has reached its thirteenth edition, and he was also the author of 'Three Pharmacopœias Compared' and 'The Pharmacopœia of the London Hospitals.'

"He leaves a widow and daughter and four sons who are well known in medicine and pharmacy, Mr. William S. Squire, A. J. Balmanno Squire, M.B., and Messrs. P. W. and A. H. Squire, the latter being his successors in the Oxford street business."

Awards at the Calcutta Exhibition.—We find in the list of prizes awarded at the late exhibition at Calcutta, the following of local interest:

First-class Certificate and Gold Medal, to Maltine Manufacturing Co. for Maltine and various preparations thereof, beef peptonoids, etc.

First Certificate and Silver Medal, to McKesson & Robbins, for capsule pills; Professor J. P. Remington, Philadelphia, for pharmaceutical still.

Second Certificate and Bronze Medal, to John Wyeth & Bro. for dialyzed iron, hypodermic tablets, compound tablets, etc.; Enterprise Manufacturing Co., Philadelphia, for Enterprise Tincture Press.

Third Certificate to Fellows' Medical Manufacturing Co. for Fellows' Syrup of the Hypophosphites.

Fourth Certificate to Lanman & Kemp, for sarsaparilla.

Fifth Certificate for Horsford's Acid Phosphates; Dr. Ayer & Co. for sarsaparilla; and to C. A. Vogeler & Co. for St. Jacob's Oil.

Jean Baptiste Dumas, the eminent French chemist, died at Cannes on Good Friday morning, in his 84th year. He was a native of Alais, in the Department of Gard, and was originally the pupil of a pharmacien at Geneva. His chemical work has been public ever since he was eighteen, and after coming to Paris in 1821, his career has been a glorious one. Scientifically, he was for a time Louis Napoleon's Minister of Commerce, was a Senator, permanent Secretary of the Academy of Sciences, and the successor of Guizot at the French Academy. He presided over the Commission which produced the Codex of 1866, and for many years he and Liebig rivalled each other in their important discoveries tending to develop the science of organic chemistry. Pasteur was a pupil of Dumas. In 1869, he delivered an eloquent eulogy at the Royal Institution, London, on "Faraday."

Japanese Paper Towels are being used for surgical purposes in one of the Philadelphia dispensaries. They are also known as Japanese napkins, and only cost about 75 cents a hundred. After being used they are, of course, thrown away, and the expense of the laundry saved. Another advantage is, that there is no danger from the introduction of septic or infectious matter into wounds, as often results from the employment of sponges and linen towels which have been previously used.—*Canad. Pharm. Journ.*

A patent medicine manufacturer died in New York last week. Before he died his friends asked him how he would like to be buried. He had just strength left to say: "Insert me top column next to reading matter fifty-two times, electro by mail," and then he closed his eyes and passed away to that bourne where there are no omissions or wrong insertions.

PHARMACEUTICAL CALENDAR.—JUNE.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Mon. 2d.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.	Wed. 11th.	New York State Pharm. Assoc.
	N. Y. Col. of Pharm. Election of Board of Pharm.—N. Y.		New York Board of Parm.—N. Y.
	Massachusetts Col. of Pharm. An. M.—B'st'n.		Kansas Pharm. Assoc.—An. M., Leavenworth.
Tues. 3d.	Kings Co. (N. Y.) Pharm. Assoc.—Brooklyn.		New York Col. of Pharm.—Alumni Assoc. M.
	St. Joseph (Mo.) Pharm. Assoc.		Toledo (Ohio) Assoc.—Toledo.
	Pennsylvania Pharm. Assoc. An. Meeting, at Wilkesbarre.	Thurs. 12th.	New York State Pharm. Assoc.
Wed. 4th.	Massachusetts Pharm. Assoc. An. Meeting, at Lowell.		Newark (N. J.) Pharm. Assoc.—Newark.
	Indianapolis (Ind.) Pharm. Assoc.—Indianap.		Philadelphia (Pa.) Col. of Pharm.—Alumni Ph. Meet.
Thurs. 5th.	Louisville (Ky.) Coll. of Pharm.—Pharm M.		Maryland Col. Pharm.—Baltimore.
Fri. 6th.	American Chemical Soc.—New York.		New York Germ. Apoth. Assoc.—Meet.
	Rhode Island Chem. and Drug Clerks' Assoc.—Providence.		Lancaster Co. (Pa.) Pharm. Assoc.—Meet.
Tues. 10th.	New York State Pharm. Assoc. An. Meeting, at the Col. of Pharm. of the City of N. Y.	Tues. 17h.	St. Joseph (Mo.) Pharm. Assoc.—Meet.
	Missouri State Pharm Assoc.—Brownsville.		St. Louis Col. Pharm.—Meet. and Alumni M.
	West Virginia State Pharm. Assoc.—Charleston.	Thurs. 19th.	New York Col. of Pharm.—Quart. M.
		Mon. 23d.	Philadelphia Coll. Pharm.—Stated M.
		Tues. 24th.	Boston (Mass.) Druggists' Assoc.—Meet.
		Thurs. 26th.	Kings Co. (N. Y.) Board Pharm.—Brooklyn.
		Fri. 27th.	Albany Co. (N. Y.) Pharm. Assoc.—Albany.

nericanDruggist

No. 7. NEW YORK, JULY, 1884. Whole No. 121.

COMMUNICATION.]

ACTURE OF SALT NE AT POMEROY, OHIO.*

C. SEEBOHM, PH.G.

(uded from p. 62.)

produced from the bit- alt works, and was for- product. At the present r, it is utilized, and pro- xtensive scale.

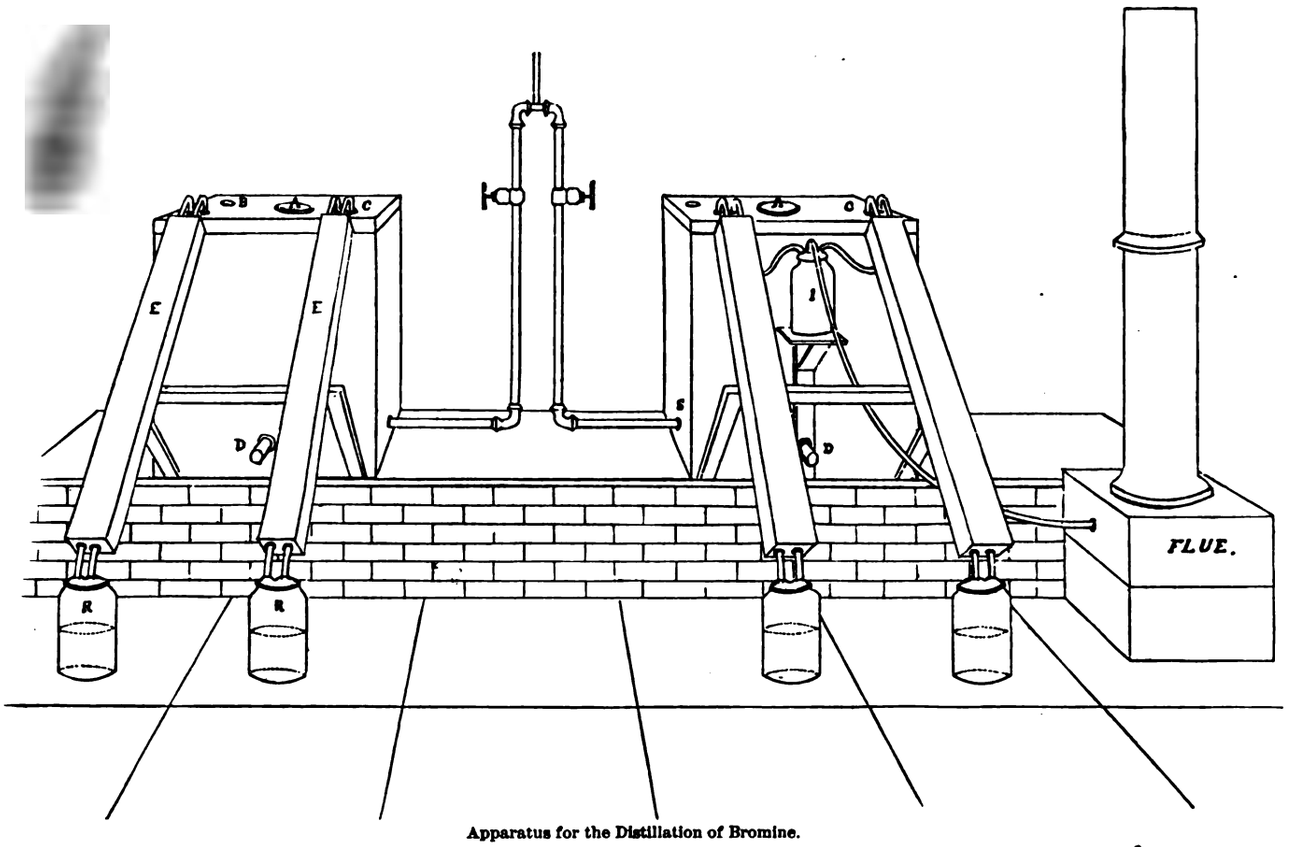
eeding with the details of ure, I will give an idea of shop. This is a small cture, usually situated be- or more salt works, with s connected by means of pipes, in order to easily ob- pply of bittern. Inside the ooden reservoirs are placed for storing the bittern; a furnace in which the bittern is heated preparatory to entering the stills, and two large stone stills or retorts, from which the bromine is distilled. The shop to which I have referred is located near the Excelsior and Buckeye Salt Works, and is run by Mr. Herman Lerner, of Mason City, W. Va. The above-named works supply this shop with bittern. After it enters the shop it is allowed to cool, after which it is passed into the purifier. From the purifier it enters the furnace where it is heated preparatory to passing into the stills which are two in number. These stills are rude stone chambers hewn out of blocks of our native sandstone. Each is about six by eight feet in size, the tops being capped. In this cap or top there are two funnel-shaped openings, the one in the center for introducing sulphuric acid, and the other near the corner for inserting the black oxide of manganese, and these funnel-shaped openings extend by a pipe thirty-two inches into the stills.

Each still is connected with two condensers, which in turn are connected with the receivers. The condensers consist of wooden troughs made of heavy poplar wood and they are kept cool by allowing cold water to run over them. The receivers are large glass bottles, capable of holding the product of one distillation. The condensers and receivers are connected to the stills by means of lead pipe, and are made air tight by means of bank clay.

Between the condensers, and connected with them a large glass bottle is placed, and here the uncondensed vapors escape together with a little bromine, which remains in the bottle while the vapors pass through a large lead pipe into what is termed the flue.

This is made of square hollow sandstone pipes about two by three feet, placed upon one another, surmounted by two fire-clay chimneys. These chimneys are filled with common coal cinder or with charcoal and this is kept moist. The escaping vapors pass into these flues, and if appreciable amounts of bromine are present it is purified, and condensed, and is obtained at the bottom of the flue. The stone retorts spoken of are capable of holding a charge of four hundred gallons of bittern, seventy-five pounds of sulphuric acid, and thirty-five pounds of black oxide of manganese. After filling them with this mixture, steam is passed into the charge. Chlorine gas is thereby liberated, which acts upon the soluble bromides, and decomposes them with the liberation of bromine which distills over into the condensers. The resultant chlorides, after the charge is exhausted, are at the present time run off as waste products. After the bromine condenses and is collected in the receivers, it is drawn into glass stoppered bottles, each capable of holding from ten to twenty pounds, and it is now ready for market.

On an average, the bromine shop I have named manufactures five hundred and twenty-five pounds of bromine per day. Fourteen gallons of bittern yield one gallon of bromine. During the past year our shops, nine in number, with a running average of three hundred days, yielded 159,500 lbs. of bromine. This yield was over and above the demand, and in consequence its production was followed by some cutting of prices. Two parties control all of the bromine manufactured, and yet they endeavored to undersell each other.



Apparatus for the Distillation of Bromine.

A.—Opening for introducing sulphuric acid, funnel shaped.
B.—Opening for introducing oxide of manganese, funnel shaped.
C.—Lead pipes connecting Still with condensers.
D.—Openi r g for letting out exhausted material.
E.—The condensers.
F.—Flue which receives the impurities.
I.—Receiver which contains impurities before passing into the flue.
S.—Pipes for passing in steam.
R.—Receivers for the bromine.

Some years ago, they received three dollars per pound for it, but the year which has passed returned them but twenty-six and twenty-seven cents.

[ORIGINAL COMMUNICATION.]

EXTRACT OF CANNABIS INDICA.

BY HENRY MACLAGAN.

FEW pharmacists who have had occasion to make preparations of extract of cannabis have failed to admire the beautiful, rich green color which is characteristic of most commercial samples, and it will, no doubt, be a surprise to many to learn that this color is not natural. If any one will faithfully follow the U. S. P. process, using *porcelain* in evaporating, as directed, he will obtain a handsome enough extract, but the color will be *brownish-black*, with scarcely a trace of green, and the operato- bly imagine, as did the - had gone wrong somev manipu-

* A thesis presented to the Cincinnati College of Pharmacy, 1884.

lation or in selecting the drug. After repeated experiments had failed to secure an extract of the supposed proper color, an accident one day occurred which led to the suspicion that the green color was due to *copper* derived from vessels used in the manufacture. Analyses of several of the best American and foreign extracts were made, with the result of *finding that metal in all;* in one case as much as ¼ of 1%, or about one grain in each ounce. Some very carefully selected cannabis tops were then exhausted with alcohol of s. g. 0.820, one-half of the percolate being evaporated in a copper vessel and the other in porcelain; the extract from the latter was brownish-black, while that from the copper had the usual rich green hue. A singular feature of the case is that, while the ORIGINAL percolate was of a bright green color, a tincture made from the "porcelain" extract is *brown*, which indicates clearly that some principle is lost or altered in the process. I do not think that this is due to heat either, as a portion of the percolate evaporated spontaneously gave the same result. The "copper" extract yields a beautiful green tincture.

Upon gently heating for a little time some of the black extract with finely-divided copper, the color quickly changes to green, and a considerable portion (about seven per cent) of the extract becomes insoluble in alcohol, but is readily soluble in chloroform. Both solutions yield green extracts, that from the chloroform being hard and brittle. Analysis of the portion soluble in alcohol showed ¼ of 1% of Cu, while the other showed the large amount of 8½%, and I think it is very probable that prolonged contact with the copper would convert the whole of the extract into the latter compound. The quantity of metal in the two combined was about ⅓ of 1%.

The question arises, Are makers of ext. cannabis indica aware of the facts here stated, and do they use the copper purposely, or is the use of that metal only accidental, being naturally adapted to and much used in laboratories? It is obvious, however, that copper vessels should not be used for this, and perhaps other *resinous* extracts, as the presence of that element can scarcely be desirable.

I am satisfied that the true color of extract of cannabis indica, made from the flowering tops, as directed by the U. S. P., is brownish-black, and that it cannot be of a green color without being contaminated with copper.

NEW YORK, June 18th, 1884.

Indian Hemp.

THE following historical notes on this subject are taken from Prof. Dymock's Materia Medica of Western India:

CANNABIS SATIVA Linn., var. *indica.* The plant and resin.

Vernacular.—Flowering tops, Ganja (*Hind. Bomb.* and *Beng.*), Kalpam, Ganja (*Tam.*); leaves, Bhâng, Siddhi, Sabzi (*Hind. Beng.* and *Bomb.*), Ganja-ilai, Bangi-ilai (*Tam.*); resin, Charas (*Hind. Beng.* and *Bomb.*), Ganja-phal, Ganja-rasham (*Tam.*).

History, Uses, etc.—Cannabis has been in use as an intoxicating agent in the East from a very early period; whether its properties were first known in Persia or in India is difficult to decide. In Hindu mythology the plant is said to have been produced while the gods were churning the ocean with Mount Mandára. It is called in Sanskrit Vijaya (giving success), and the favorite drink of India is said to be prepared from it. On festive occasions large quantities are consumed by almost all classes of Hindus. The Brahmins sell sherbet prepared with bhang at the temples; religious mendicants collect together and smoke ganja. Shops for the sale of preparations of hemp are to be found in every town, and are much resorted to by the idle and vicious. A notice of hemp has been traced in the fifth chapter of Manu, where Brahmins are prohibited the use of Ganjera[?]. In the Rajanighantu its synonyms are "Vijayâ," "Ujayâ" and "Jayâ," names which mean promoters of success, "Vrijpatta," the strong-leaved, "Chapalâ," the cause of a reeling gait, "Ânanda," or the laughter moving, "Harshini," the exciter of sexual desire. Its effects on man are described as excitant, heating, astringent; it destroys phlegm, expels flatulence, induces costiveness, sharpens the memory, excites appetite, etc.

The Rajavallabha alludes to the use of hemp in gonorrhœa. Susruta recommends the use of bhang to people suffering from catarrh.

The notices of hemp in Arabic and Persian works are much more numerous. The oldest work in which it is noticed is a treatise by Hassan, who states that in the year 658 A.H., Sheikh Jafer Shirazi, a monk of the order of Haider, learned from his master the history of the discovery of hemp. Haider lived in rigid privation on a mountain between Nishabar and Rama, where he established a monastery; having lived ten years in this retreat, he one day returned from a stroll in the neighborhood with an air of joy and gaiety; and being questioned, he stated that, struck by the appearance of a plant, he had gathered and eaten its leaves. He then led his companions to the spot, who all ate and were similarly excited. A tincture of the hemp leaf in wine or spirit seems to have been the favorite formula in which Sheikh Haider indulged himself. An Arab poet sings of Haider's emerald cup, an evident allusion to the rich green color of the tincture. The Sheikh survived the discovery ten years, and subsisted chiefly on this herb, and on his death his disciples at his desire planted it in an arbor round his tomb. From this saintly sepulchre the knowledge of the effects of hemp is stated to have spread into Khorasan. In Chaldea it was unknown until 728 A.H., the Kings of Ormus and Bahrein then introduced it into Chaldea, Syria, Egypt, and Turkey. In Kharasan, however, it seems that the date of the use of hemp is considered to be far prior to Haider's era. Beraslan, an Indian pilgrim, is believed to have introduced it in the time of Casroes. Makrizi mentions its use in Egypt, and states that oxymel and acids are antidotes to its narcotic effects; he describes its properties as diuretic, astringent, and aphrodisiac. Ibn Baitar was the first to record its tendency to produce mental derangement. In 780 A.H., very severe ordinances were passed in Egypt against the use of hemp, those convicted were subjected to the extraction of their teeth; but in 799 A.H., the custom re-established itself with more than original vigor. (Confer Bengal Dispensatory.)

The author of the Makhzan-ul Adwiya describes hemp under the Arabic name of Kinnab, which he says is supposed to be derived from the Persian Kanab; he gives Oodifaroonas as the Yunani name, and Kanabira as the Cyrian, and also mentions a number of cant terms which are applied to it, such as Wark-ul-Khyal, Hashish, Hashishat-ul-fukara, Arsh-numa, Chatr-i-akhzar, etc. Charas is described, and the practice of smoking it. The Bengal grown hemp is said to be less intoxicating than that grown in more northern climates. Hempseed is called in Persian Shahdanah. The leaves are made into Sherbet and conserves for intoxicating purposes. The properties of hemp are described as cold and dry in the third degree, that is, stimulant and sedative, imparting at first a gentle reviving heat, and then a refrigerant effect, the drug at first exhilarates, improves the complexion, excites the imagination, increases the appetite, and acts as an aphrodisiac; afterwards its sedative effects are observed—if its use is persisted in it leads to indigestion, wasting of the body, melancholy, impotence, and dropsy. With respect to other uses to which the drug may be put, the author of the Makhzan says: "The leaves make a good snuff for deterging the brain, their juice applied to the head removes dandruff and vermin, dropped into the ear it allays pain and destroys worms, it checks the discharge in diarrhœa and gonorrhœa, and is diuretic." The powder of the leaves is recommended as an external application to fresh wounds and sores, and is used to promote granulation, a poultice of the whole plant is applied to local inflammations, erysipelas, neuralgia, etc. The dose of the leaves is one dirhem (48 grs.) when administered internally (Makhzan, article Kinnab). Sir W. O'Shaughnessy in the Bengal Dispensatory informs us that Mirza Abdul Russak considers hemp to be a powerful exciter of the flow of bile, and relates cases of its efficacy in restoring appetite, of its utility as an external application, as a poultice with milk in relieving hæmorrhoids, and internally in gonorrhœa, to the extent of a quarter drachm of baugh.

Dosing an Elephant.

ONE of Barnum's secular elephants, "Allah," was attacked with enteritis while in Cincinnati. Dr. George W. Bowler, V. S., was called in, and relates his experience in *The Journal of Comparative Medicine.* The diagnosis being made, he prescribed and administered the following liberal dose: lard, eight pounds; linseed oil, one gallon; tincture of opium, one pint; spirits of nitrous ether, one pint; syrup, one quart. The lard and oil were first mixed, then the other ingredients added. The trunk was raised above the head and the mixture poured down the throat through a large metal tube. The animal recovered.

Ergot in Hay.

DR. W. MANLIUS SMITH, of Syracuse, N. Y., writes: "In *The Medical Record* of May 10th, p. 511, in a paragraph on 'Foot and Mouth Diseases in Kansas,' you ask, 'But how does ergot get in hay?' To this I answer that I have frequently observed ergotized grains on the common quack (or quick) grass, *triticum repens.* I remember also, several years ago, noticing and collecting ergot from some of the coarse grasses on the banks of the muddy stream that winds through Jersey City flats. It is further well known that some of the ergot of commerce is furnished by the wheat-plant, the ergotized grains of this plant being shorter and blunter than those of the rye. The size and shape of the ergot varies in the different grasses on which it occurs, but its general appearance and internal structure is so nearly alike in all that it is readily recognized as ergot. There is no improbability in the statement that Kansas hay contains ergot."—*Med. Record,* May 17th.

Hydrobromic Acid in Epilepsy.—Dr. H. C. Wood (*Med. News*) says that the doses of hydrobromic acid ordinarily used are too small. He has, in three cases of epilepsy, given half-ounce doses of the officinal acid with syrup, and found it more efficient than corresponding doses of sodic or potassic bromide, and less liable to cause bromism. It should be diluted with a half-pint of water, and taken after meals.

NEW PHARMACEUTICAL APPARATUS.

AMONG the articles exhibited at the recent meeting of the New York State Pharmaceutical Association in this city were a number of appliances made by Messrs. Canning & Patch, of Boston, and invented by the latter. Described mainly in their own words, they are as follows:

PILL-COATER.

The "Improved Pill-Coater" is thoroughly constructed of well-seasoned cherry, after such a manner that it will be hard to get out of order, yet in event of injury it can be easily repaired by any one possessing a moiety of mechanical skill. It consists of a tray ten by fifteen and one-half inches, carrying a dividing plane and stripper, of a drying-disk, spindle, supporting rods, and clamps of iron, tinned copper solution dish, needle-bars, handle, and fans. The inclined plane or dividing-board terminates in pockets, necessitating the pills coming immediately under the needle-points, while the adjustable stops, raised or lowered by the thumbscrews, regulate the depth to which the needles penetrate, and permit the affixing of pills of any size.

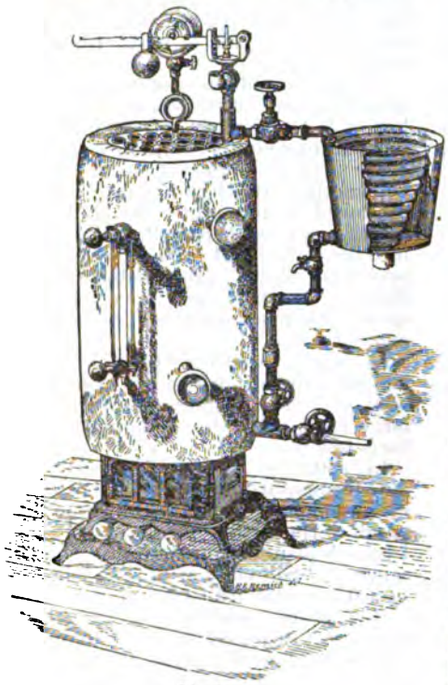


Fig. 2.

The needles are so fixed in the bars that they cannot be withdrawn; yet, if one is broken, it can be replaced without interfering with the others. The detachable handle permits the employment of the apparatus for prescription work. The drying disk permits free circulation of air and favors rapid drying. It can be affixed to the counter edge or an overhanging shelf.

The rods may be employed for carrying burette-holders, retort-rings, or condensers. By attaching the fans, the apparatus can be employed to hasten evaporation.

PHARMACEUTICAL STEAM BOILER.

This boiler was devised for use in summer-time by those having large set boilers which they do not find it economical to heat for many processes where a small amount of steam is desirable. It was also designed to enable pharmacists who do not feel able or do not find it convenient to employ steam for heating purposes, to have a cheap and ready means of securing all the advantage of steam heat in hot filtration, solution, evaporation, drying, distillation, etc., etc.

It is constructed throughout of steel, and covered with asbestos to prevent loss by radiation. Set over a three-burner Adams and Westlake kerosene stove, with reducing top, it generates steam in twenty-three minutes, and reaches eighty pounds pressure inside sixty minutes.

The conical coil, placed in a tinned copper case, answers for hot filtration. By placing water in the case, we have a water or steam bath; replacing the water with sand, we have a sand bath; covering, we have a steam drying closet.

Attached to the combination still (see Fig. 3) of about four and a half gallons capacity, containing about three and a half gallons of water, the latter is brought into brisk ebullition in about forty-five minutes, starting at thirty pounds pressure.

PHARMACEUTICAL STILL.

The still is constructed entirely of tinned copper of suitable weight. A tightly fitting water-joint permits the ready adjustment of the head without luting or the use of clamps, and permits access to the interior at any time.

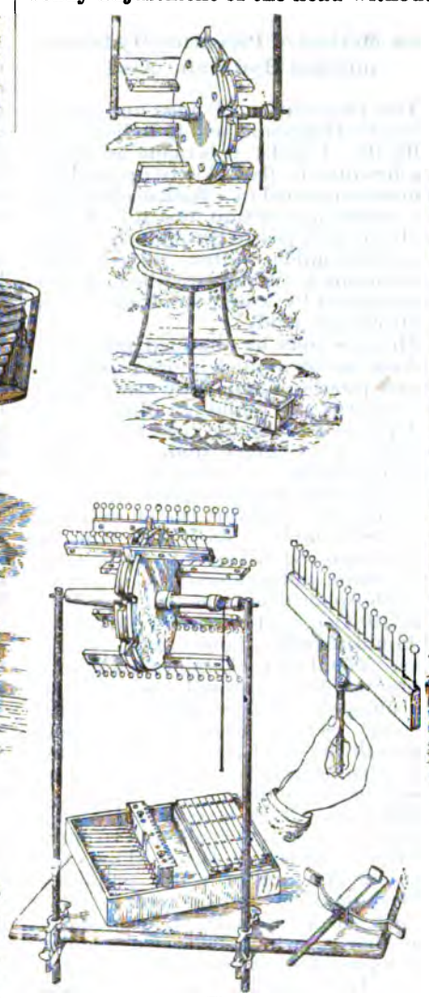


Fig. 1.

The Liebig condenser fits the still-neck without fastening.

Heads of tinned copper, with reducing rings, permit the formation of a steam or water bath.

The residue is drawn off through the faucet, obviating any dipping.

Used as a jacketed kettle, it is available for steam-trying lard, for making syrups, etc., etc.

A modification of the still, with solid bottom adapted to direct heating, and furnished with a water-bath attachment that, detached from the still, forms a desirable capsule, is furnished at the same price.

The prices of these apparatuses are respectively $15, $50, and $25.

Pipitzahoic Acid is a product derived from the root of a Mexican plant called Pipitzahuate belonging to the order of Compositæ. The plant is used as a purgative by the natives. Vigener, of Biebrich, Germany, obtains the acid by adding distilled water to a strong tincture to form a precipitate. After cooling, the crystals are dissolved in cold alcohol and purified by sublimation over a water bath; a temperature of 90° C. being sufficient. The acid has been termed "aurum vegetabile."—*Chem. and Drug.*

Bleaching Sponges.

[THOUGH we believe the best method for bleaching sponges to be that published by us in our last volume, NEW REM., 1883, p. 213, yet we insert the following, to complete the information there given.]

As is well known, chlorine and its compounds cannot be used for bleaching sponges, as they impart a yellow color to the latter, which in addition become hard and lose their fine texture. The method now generally employed is a water solution of sulphurous acid, and requires from six to eight days, and considerable manipulation. According to the latest researches made in Germany, the bleaching of sponges can be performed more conveniently and expeditiously by means of bromine dissolved in water. As is well known, one part of bromine requires thirty parts of water to dissolve it, and thus a concentrated solution can easily be obtained by dropping a few drops of the former into a bottle of distilled water and shaking it. The sponges are submerged in this solution, and after a lapse of a few hours their brown color changes to a lighter one, the dark-red bromine solution changing at the same to light yellow. By treating the sponges to a second immersion of a fresh solution, they acquire the desired light color in a short time. They are improved still more if finally dipped in dilute sulphuric acid and washed with cold water. It seems strange that such closely allied bodies as chlorine and bromine should act so differently toward the coloring matter in sponges.—*Scient. Amer.*

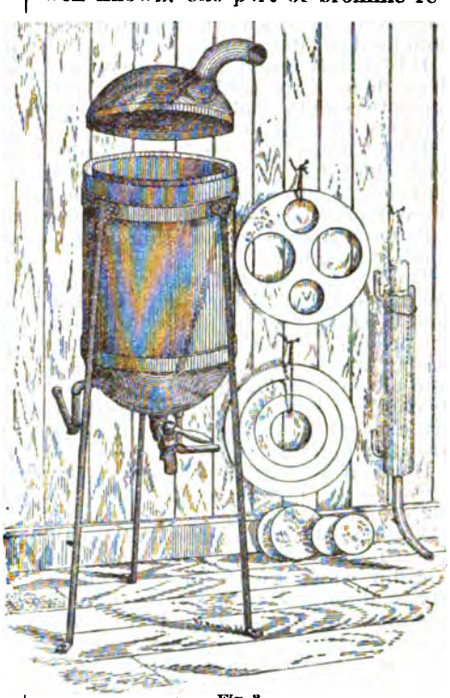


Fig. 3.

Identification of Burnt Alum.

SINCE burnt alum requires considerable time for solution in water, and it may be sometimes desirable to be able to identify it at once, Dr. Vulpius recommends the use of a solution of potassa as a solvent. A small quantity of the salt is shaken with the reagent which dissolves it at once; on subsequent addition of an excess of chloride of ammonium, a white, gelatinous precipitate is produced.—*Pharm. Zeit.*

White and Yellow Wax.

WHITE wax should have a specific gravity of .965 to .975. No bleached German wax has a lower gravity than .967. Lighter specimens are either adulterated with ceresin, or are made from waxes from tropical countries, as Zanzibar, Benguela, or the West Indies, while a gravity of more than .970 indicates an Egyptian origin. Wax-bleachers assert that the bleaching process raises the specific gravity .002 on average, so that the white wax of the German Pharmacopœia, sp. gr. .965 to .975, can only be prepared from yellow wax with sp. gr. .963 to .973. But the Pharmacopœia sets the sp. gr. at .955 to .967. We would mercilessly condemn any wax with a lower gravity than .963. It cannot be pure.—April Report of Dieterich, Helfenberg near Dresden, in *Chem. and Drugg.*

On "Liquid Paraffin;" and its Employment as Reagent for Water in Alcohol, Ether, and Chloroform.

THE last German Pharmacopœia has adopted a substance, under the name of *Paraffinum liquidum*, which is comparatively little known, and but seldom used in laboratories.

It is an oily liquid, a mixture of hydrocarbons of the methane series, boiling between 215° and 216° C., in vacuo (under 6 Mm. pressure).

This "liquid paraffin" is miscible with chloroform and ether in all proportions to a clear liquid, provided these liquids are anhydrous or have been freed from water or other admixtures by sodium.

The least quantity of water or aqueous alcohol causes turbidity, so that this behavior may be utilized to show the presence of water in chloroform or ether; 20 Cc. of chloroform or absolute alcohol, to which 0.04 Cc. of 50% alcohol are added, become considerably clouded on the addition of a few drops of liquid paraffin.

Hence it is capable of showing the presence of 1 volume of water in 500 volumes of alcohol.

Absolute alcohol dissolves only small quantities of liquid paraffin. If liquid paraffin is mixed with an equal quantity of absolute alcohol, the two liquids separate, and the alcoholic layer when separated is perfectly clear. But if aqueous alcohol be now added to it, a dense white turbidity is immediately produced, and the water soon separates in form of small drops. Hence, a solution of liquid paraffin in absolute alcohol may be used as a reagent for absolute alcohol itself.

Liquid paraffin behaves in the same manner towards methylic alcohol.

Pure amylic alcohol and crude fusel oil are soluble in liquid paraffin. It is probable that this behavior might be used for the separation of these bodies from alcohol destined for beverages.

Liquid paraffin abundantly dissolves chlorine, bromine, and iodine; also the chlorides, bromides, and iodides of phosphorus—the two former in all proportions, while the latter separates again soon. It also dissolves the iodides, bromides, and chlorides of the (monatomic) alcohol radicals.

If a piece of colorless phosphorus is put in a flask standing in cold water, then liquid paraffin be poured on the phosphorus, and a current of dry chlorine be allowed to pass over it, the liquid will become warm, but neither explosions nor flashes of light will be observable. As soon as chlorine is no longer absorbed, the trichloride of phosphorus may be distilled off, and may subsequently be converted into pentachloride of phosphorus. On distilling the trichloride, the liquid paraffin is partly decomposed and blackened. Nevertheless, this mode of preparation is quite rapid and free from danger.

If bromine be allowed to fall, in drops, upon the phosphorus covered by the liquid paraffin, strong flashes of light are soon observed. An explosion need not be feared, provided the flask is properly cooled. The tribromide of phosphorus may be separated by distillation, and the yield is very large. During this reaction, the liquid paraffin appears to be slightly decomposed.

The same effects are produced if iodine is used in place of bromine. The resulting iodide of phosphorus separates in form of a brownish mass.

From what has been said, it appears that liquid paraffin can be used in place of disulphide of carbon when working with phosphorus and any of the halogens. It has the great advantage over disulphide of carbon and over chloroform that it is not volatile.—LÉON CRISMER in *Ber. d. Deutsch. Chem. Ges.*, 1884, 649.

New Method of Preparing Hydrobromic and Hydriodic Acid.

THE preparation of pure and anhydrous hydrobromic acid is tedious and difficult. Usually, it is made by allowing bromine to flow slowly upon phosphorus contained in a flask cooled with ice, while a constant stream of dry carbonic acid passes through the flask. The tribromide (often mixed with pentabromide) is then distilled off and decomposed by water, so as to obtain hydrobromic acid.

This gas may be obtained pure and anhydrous by a much more rapid and simple process, namely, by using white phosphorus and liquid paraffin.

A piece of white (or colorless) phosphorus is weighed under (enough) liquid paraffin (to cover it), and the quantity of bromine weighed off which is necessary to convert the phosphorus into tribromide. Each ten Gm. of phosphorus require seventy-seven Gm. of bromine and eighteen Gm. of water. The phosphorus is then transferred to a small flask, and covered with a layer of liquid paraffin of one finger in thickness. The flask is closed with a doubly perforated cork, through one of which openings passes a perpendicular tube serving as an upright condenser. Through the other passes a globe funnel with stop-cock, serving as the reservoir of bromine.

While the flask is constantly well cooled, the bromine is allowed to enter in drops. When it is all added, the requisite amount of water is placed into the funnel, and allowed to flow, drop by drop, upon the tribromide of phosphorus, which causes a regular development of gaseous hydrobromic acid. This is purified by allowing it to pass through a bent tube containing a little red phosphorus and anhydrous phosphoric acid, provided it is desired to obtain it completely anhydrous. Finally, the mixture is heated on the sand-bath in order to drive over the last traces of hydrobromic acid. The yield is very nearly that required by theory.

Hydriodic acid is prepared in the same manner. The iodine is at first added in small quantities to the phosphorus covered by the liquid paraffin; afterwards water is added, and the mixture lastly heated on the sand-bath.

[The author also gives details for preparing iodide of ethyl in the same manner, the requisite proportions being thirteen Gm. of phosphorus, one hundred and sixty Gm. of iodine, and sixty Gm. of alcohol. In the same manner iodide of methyl may be prepared, and we presume—although the author does not specially mention it—also other similar compounds, for instance, bromide of ethyl or hydrobromic ether.]—LÉON CRISMER in *Ber. d. Deutsch. Chem. Ges.*, 1884, 651.

Citric Ether in Lemons or in Lemon-Juice.*

LEMONS which are placed damp in a cupboard give out after a certain time a very strong odor of ether, which coincides with the development of *Aspergillus glaucus* upon them. When this mycrophyte penetrates into the interior, or covers the surface of a section of the fruit, the juice on being expressed has also a very strong flavor of ether.

I have been aware of this fact for a considerable number of years (though I have never seen it alluded to, and have often wondered how the ether is produced in these circumstances. But it was not until a short time ago that I observed its production always corresponded with the development of *Aspergillus glaucus* upon the lemons, for the little plant is not always detected at first by the eye alone.

Citric ether may exist in lemon-juice, just as acetic ether, for instance, is known to exist in the sap of certain other plants, but citric ether has a very different composition from acetic ether, inasmuch as it contains three equivalents of ether to one of acid and on being decomposed by Aspergillus glaucus, two of these equivalents are probably set free. Such, at least, is the interpretation I put upon the phenomenon, and this is what, I believe, occurs:—

Under the influence of warmth and moisture some of the sugar of the ripe lemon is fermented, and the alcohol formed immediately combines with the citric acid so abundant in the juice. Citric ether (triethylic citrate) is thus produced, which, under the continued influence of the Aspergillus, is split up into free ether and carbonic acid (with probably some intermediate products). So that, as the action proceeds, ether is volatilized into the air around.

In warm weather three or four lemons will thus diffuse a very marked odor of ether through the air of a large room which has remained closed for a few days.

In spite of their well-ascertained anti-fermentative properties, both citric and salicylic acids will in time succumb to the action of microphytes, as I have had many opportunities of observing. Salicylate of lime in solution in water to which dust has access develops a white microphyte in a few months at ordinary summer temperature, abundant filaments of which will be found covering undissolved crystals of this salt.—DR. T. L. PHIPSON in *Chem. News.*

Cheese from Skim-Milk and Foreign Fat.

THE well skimmed milk, according to Willard, is intimately mixed at 54° with 1½ per cent lard at the same temperature in a mixing machine; the so-called lard cream is thus formed, which is then made into cheese with rennet. Such cheese is largely produced near Little Falls, U. S. A.

Griffiths gives analyses of such American cheese purchased in London, as follows:

	I.	II.	III.	IV.
Water	23.49	28.20	26.55	31.81
Casein	36.21	37.01	35.58	36.10
Fat	34.92	30.18	33.85	28.68
Ash	5.24	4.51	3.90	3.40
	99.86	99.90	99.88	99.99

A little arsenic was found in the rind of I. and IV., possibly added to keep off insects. Starch was not found.

It is said that olive oil, and even cotton-seed oil, is largely used instead of lard in several American establishments.—X. A. WILLARD in *Bied. Centr.*, 1883, 552.

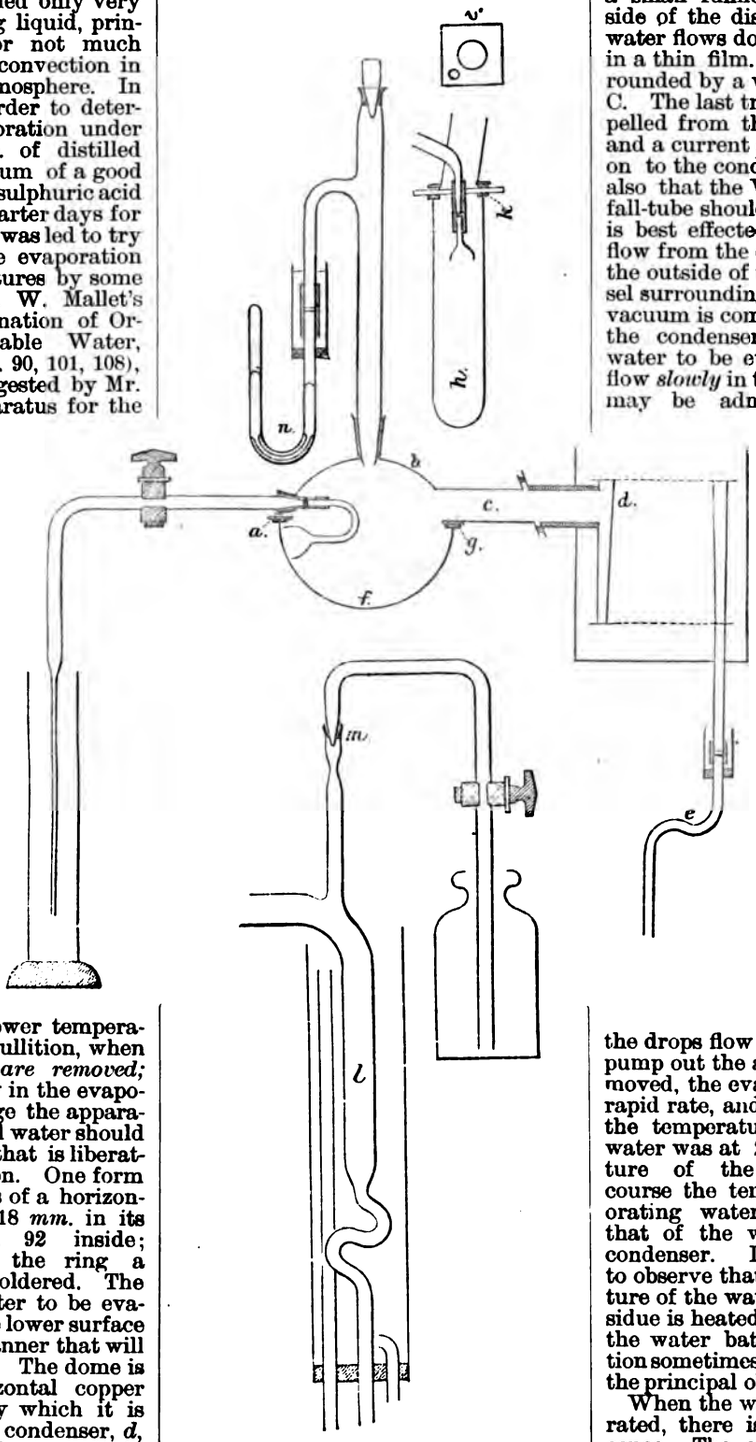
* The original paper is entitled "Action of *Aspergillus Glaucus* on Citric Ether in Lemon-Juice."

ON EVAPORATION IN VACUO.

BY HENRY MCLEOD.*

THE ordinary method of evaporation *in vacuo* by placing the liquid in a dish over sulphuric acid in an air pump receiver is very slow, and for three reasons: firstly, the aqueous vapor reaches the surface of the acid by diffusion only, for by an ordinary air-pump it is possible only to obtain a considerable rarefaction, and not to remove all the air from the receiver; secondly, the surface of the sulphuric acid is limited, and as the dilute sulphuric acid has a lower density than the oil of vitriol, it forms a layer on the surface of the latter and much retards the absorption; and, lastly, heat is supplied only very slowly to the evaporating liquid, principally by radiation, for not much heat will be carried by convection in a highly attenuated atmosphere. In an experiment tried in order to determine the rate of evaporation under these conditions, 50 C.c. of distilled water placed in the vacuum of a good air-pump over 250 C.c. of sulphuric acid required two and one-quarter days for complete evaporation. I was led to try some experiments on the evaporation of water at low temperatures by some remarks in Professor I. W. Mallet's paper "on the Determination of Organic Matter in Potable Water, (*Chem. News.* 46, 62, 73. 90, 101, 108), and the method was suggested by Mr. A. W. Wright's "Apparatus for the Distillation of Mercury *in vacuo*"(ibid., 44,311). When the experiments were nearly concluded, another paper by Professor Mallet appeared in the *Chemical News* (47, 218, 252), in which an apparatus is described which bears a very close resemblance to one which I had constructed in the early part of the investigation, and although this seems to have answered all the purposes for which it was designed, it may not be without interest to describe some of the most successful forms at which I have arrived.

In distilling mercury in Wright's apparatus, it is at once obvious that the operation proceeds very much more rapidly and at a much lower temperature, and also without ebullition, when the *last traces of air are removed;* hence it seems neccessary in the evaporation of water to arrange the apparatus so that the condensed water should itself pump out the gas that is liberated during the evaporation. One form of the apparatus consists of a horizontal flat brass ring *a*, 118 *mm.* in its outside diameter and 92 inside; to the upper side of the ring a dome of copper, *b*, is soldered. The dish containing the water to be evaporated is attached to the lower surface of the brass ring in a manner that will be afterwards described. The dome is provided with a horizontal copper tube, *c*, 18 *mm.* wide, by which it is connected with a copper condenser, *d*, consisting of a truncated cone within a cylinder, the space between the two being inclosed at the top and bottom by means of copper rings soldered on. This forms a condenser of small capacity and with a large cooling surface; it is fixed in a tin can, through which a stream of water can be made to flow. It is necessary that the connecting tube between the dome and the condenser should be wide, so as to permit of the rapid passage of the rarefied aqueous vapor. The bottom of the condenser is provided with a narrow brass tube, to which is attached a glass tube with a bend, *e*, near its upper end, in which the drops of water are formed which produce the exhaustion. In a laboratory where a fall of about thirty-five feet is obtainable, this might constitute the whole apparatus, but not having at my disposal a greater height than that of the laboratory bench, the lower end of the fall-tube is fitted into the neck of a Woulffe's bottle, which latter is connected with a Körting's jet pump to remove the air at the commencement of the operation. The Woulffe's bottle is also provided with a siphon for the removal of the condensed water.



The dish *f* in which the evaporation is performed is an ordinary hemispherical glass evaporating dish about 100 *mm.* in diameter, and with its edge ground smooth.

A wetted red india-rubber ring, *g*, is placed on the lower surface of the brass ring attached to the dome, the edge of the dish being pressed upwards against it, and the jet pump set in action. The atmospheric pressure soon holds the dish firmly in position. [To guard against accidents, a support should be put under it.]

The red india-rubber ring is preferable to ordinary sheet india-rubber, as it does not adhere firmly to the glass when the dish has to be removed; it also may be used a large number of times. When the vacuum is as good as the pump will make, a small quantity of distilled water is allowed to flow into the dish from a supply tube provided with a stop-cock and attached to a small tubulure on one side of the dome. This supply tube terminates in a small funnel which touches the inside of the dish so that the admitted water flows down the side of the dish in a thin film. The dish is then surrounded by a water-bath heated to 50° C. The last traces of air are thus expelled from the dish and condenser, and a current of water is then turned on to the condenser. It is necessary also that the Woulffe's bottle and the fall-tube should be kept cool, and this is best effected by allowing the overflow from the condenser to run down the outside of the fall-tube into a vessel surrounding the bottle. When the vacuum is complete, the water around the condenser is removed, and the water to be evaporated is allowed to flow *slowly* in the dish; 50 C.c. at a time may be admitted, the water-bath being maintained at 40 or 50°, preferably with the aid of a thermostat. Much of the dissolved air escapes during the entrance, and, if time can be spared, it is advisable to allow the water to remain in the vacuum for an hour or so to *avoid the violent ebullition* which sometimes occurs. If it is necessary that the evaporation should be begun at once, it is better to raise the temperature of the water in the bath very slowly from 30 to 50° while the water is running round the condenser. No experiment has been made with water cooled with ice, that of the supply being always employed. Water soon begins to form in the condenser, and the drops flow down the fall-tube and pump out the air. When the air is removed, the evaporation proceeds at a rapid rate, and in some cases in which the temperatures were observed, the water was at 26° whilst the temperature of the bath was 50°. Of course the temperature of the evaporating water will depend also on that of the water surrounding the condenser. It is hardly necessary to observe that although the temperature of the water is low, the solid residue is heated to the temperature of the water bath. Tumultuous ebullition sometimes takes place; and this is the principal objection to the process.

When the water is nearly all evaporated, there is considerable effervescence. The evaporation proceeds at about the rate of 50 C.c. in two hours. In an open dish over a water-bath the same quantity of water is evaporated in about one to one and a half hours. To avoid loss from spirting, the evaporation may be carried on in a wide test-tube (*h*), the condenser being provided with a glass plate (*i*), pierced with two holes, a large one through which the vapor enters the condenser, and a small one through which the supply tube passes into the evaporating tube; an india-rubber ring (*k*) makes an air-tight joint between the plate

* The idea of constructing a vacuum apparatus for evaporating small quantities of liquid, contained in a removable capsule, in a reasonably short time, will probably have occurred to many chemists or working pharmacists without their being able to arrive at a simple and satisfactory solution. That offered in the above paper, though probably capable of much improvement, gives valuable hints for constructing such an apparatus.

and the mouth of the tube. The test-tube is very slightly inclined to the horizontal, and is surrounded by a water-bath. The water to be evaporated is allowed to flow in slowly, and the evaporation carried out at the same time. Even if violent boiling takes place, the liquid is only thrown across the tube, and the residue is not lost. This form of apparatus may be useful when the residue is to be determined, and it is not necessary to remove the solid, and it has the further advantage that the tube may be closed during the weighing by a glass cap, which diminishes the rate at which the residue absorbs water from the air. The evaporation in the tube is slower than in the dish for two reasons: firstly, the evaporating surface is smaller; and secondly, gas continues to be evolved during the whole process, thus producing an increased pressure. A light spherical flask may be employed in place of the test-tube, and has the advantage of permitting 50 C.c. of the water to be introduced at a time, with out danger of loss from ebullition.

Another modification of the method is to replace the condenser by a wide vertical tube (*l*), along the inner surface of which a thin layer of sulphuric acid is allowed to pass, the acid being admitted by a tubulure (*m*), and regulated by a stop-cock. The water vapor is rapidly absorbed, and passes down the fall-tube as dilute sulphuric acid. In this way it is possible to conduct the evaporation at a temperature only a few degress above the freezing point, the water bath being maintained between 30° and 40°. By surrounding the wide tube with a flow of cold water, the evaporation is more rapid and the acid is much economized, one volume of water requiring about one of sulphuric acid for its evaporation; if the tube is not cooled, about three volumes of acid are necessary. Care is necessary in regulating the flow of acid, for if too rapid, the water may be frozen and the evaporation much retarded; bubbles of gas also often form under the ice, resulting in violent boiling. As a thermometer plunged in the liquid would be inadmissible when the solid residue is required, the temperature may be estimated by means of a pressure gauge (*n*), the temperature corresponding to the pressure being given in the ordinary tables. After use, the sulphuric acid may be boiled in an open flask until it begins to fume. It can thus be used any number of times. This modification of the apparatus is very efficient for drying solids. Salts very quickly lose their water of crystallization, and this without fusion even at 100°, and the prevention of access of air may often prove advantageous. Magnesic sulphate thus loses six molecules of water at 100°, whereas it requires a temperature of 150° at the ordinary pressure. Sodic carbonate can also be well dried in this manner, although when a large quantity of the salt is placed in the dish, its bad conductivity prevents the access of heat to the interior of the mass. One hundred and seventy grams of crystallized sodic carbonate lost all but two per cent of the water in twelve hours; about six hours after the commencement of the operation the apparatus was opened, the salt powdered and dried for another six hours. Although the use of this method of evaporation and drying cannot be said to be free from objectious, yet possibly its description may prove of some value to those who may be experimenting in this direction.—*Journ. Chem. Soc.*, Sept., 1883.

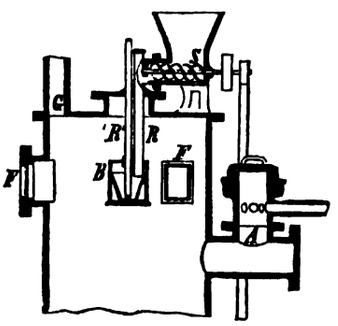
A Perilous Toy.

THE so-called "serpent's eggs" of the toy-shops contain, says Dr. George Hay (*Medical Times*), from one to three-tenths of a grain of sulphocyanogen, quite enough to kill a child if he should happen to swallow it.

The Percentage of Active Chlorine in Old Chloride of Lime.

K. THUMMEL has examined fifteen samples of chlorinated lime which had been kept on store for some time, some of them for weeks, under very unfavorable circumstances and found the average per centage of active chlorine still contained in them to be as high as 31.2 per cent. This result is interesting, as it shows that chlorinated lime does not deteriorate by keeping to anything like the extent generally supposed.

The author was led to this experiment by the reduction of the required percentage of active chlorine in chlorinated lime in the new German Pharmacopœia to 20 per cent, as against 25 per cent. in the former edition.—*Arch. d. Ph., and Chem. and Drugg.*



APPARATUS FOR THE CONTINUOUS PREPARATION OF CHLORIDE OF LIME.

SLAKED lime is introduced, in fine powder, through the turbine S and the sieve attachment at B. This latter consists of a funnel having a circular slit around the bottom. A current of air passed through R forces the lime through the slit, and the openings of the sieve into the apparatus. At the same time, a uniform stream of chlorine gas is introduced from A, which immediately converts the descending dust into chloride of lime.

The lower part of the apparatus is provided with a turbinated discharge chamber, where the finished chloride of lime is continuously delivered.—*Germ. Pat.*, 24,702.

Impervious Corks.

CORKS may be made impervious by soaking them—best quality—for several hours in a solution of ½ oz. of glue or gelatin in a mixture of ½ oz. of glycerin and 1 pint of water, heated to a temperature of about 50° C. (122° F.). Such prepared corks may be rendered nearly proof against acids and other chemicals, if they are dipped, after thorough drying, for ten or fifteen minutes into a melted mixture of four parts of paraffin and one part of vaseline.—*Polyt. Mitth.*, 20, 207.

The Assay of Pepsin.

MR. PIERRE VIGIER was charged by the French Pharmacopœia Commission with the study of the digestive ferments, and has lately published an abstract of his experiments which will be of interest to many of our readers.

The usual methods in use for testing pepsin consist in making it act, under certain known conditions, upon albumen or fibrin.

The assay by means of albumen is particularly in vogue in England and the United States.

According to Mr. Vigier, this method is "not physiological" enough, inasmuch as it merely requires to accomplish the solution of the pepsin, and not its conversion into peptone.

On first appearance, it seems advantageous, by reason of its ready and rapid execution. Yet it is absolutely devoid of precision, since the results differ according as the albumen is divided into more or less small pieces. If it is in cubes, the solution takes place very slowly, because only the outer walls can be attacked. If it has been passed through a sieve, it is dissolved the more rapidly the finer it is; in fact, if it has been reduced to a very finely-grained pulp, even a weak pepsin will dissolve it quite rapidly.

On the other hand, a weak pepsin is not capable of converting fibrin into peptone, though it may dissolve albumen.

The author has observed a curious fact, in connection with albumen, which has great influence upon the test. If the albumen is exposed to the air for some time before it is used, it becomes less and less soluble; two hours suffice to render it almost refractory to the action of pepsin.

The French Codex of 1866, in its pepsin test, gave preference to fibrin. It required that the official or extractive pepsin should digest ten times its weight of fibrin in twelve hours, and that the starchy pepsin should digest six times its weight.

The Société de Pharmacie proposed to introduce a modified process which should require only six hours. But Mr. Vigier, to whom the special study of this subject had been intrusted, further modified it, and in this shape it was adopted in the new codex:

	Gm.	Grains
"Medicinal Pepsin," in powder	0.50	7.7
Distilled Water	60.00	910
Hydrochloric Acid (sp. gr. 1.171)	0.60	9¼
Fibrin	10.00	154

(The fibrin may be derived from mutton, pork, or veal, and should have been washed and dried.)

Warm the mixture on a water-bath, in a wide-mouthed flask, during six hours, at a temperature of 50° C. (122° F.), shake frequently until the fibrin is dissolved (which takes place rapidly). Afterwards shake once every hour. After six hours' digestion, 10 cubic centimeters of the filtrate should be neither precipitated nor rendered cloudy on the successive addition of 30 to 40 drops of pure nitric acid.

"Medicinal pepin" is understood to be "saccharated pepsin."

If "extractive pepsin" (so-called "pure pepsin") is used, the above conditions must be fulfilled, by taking 0.20 gm. (or 3.09, or short 3 grains) of it for the test.

This fibrin test is based upon the idea that pepsin is valueless unless it can transform fibrin into peptone, the principal characteristic of which is that it is not precipitated by nitric acid.

When an albuminoid substance, such as fibrin, is submitted to the action of pepsin, in presence of an acid and at a proper temperature, it undergoes successive transformation: at first it swells up, then it dissolves; next, it passes through certain intermediate stages, during which it is less and less precipitated by nitric acid. Finally, it passes into peptone. Physiology has established the fact that albuminoids are assimilable only in form of peptone; hence, any pepsin which is incapable of bringing about this metamorphosis must be considered as unsatisfactory.—*Journ. de Pharm.*, 1884, 398.

Dividends of Chemical Works.

THE Brunswick Quinine factory have declared a dividend of 12½ per cent out of the net profits for 1883.

The Chemical Company of Berlin (formerly Schering's Factory) has paid a dividend of 12 per cent on the business of 1883. The Badische Anilin- und Soda Fabrik reports a net profit of 5,000,000 marks, and pays 18 per cent, while the chemical factory of Pommernsdorf pays 24 per cent.

The Curaçao Orange and its Uses.

THE principal fruit that has made the name of Curaçao known to the world is the orange grown there, *Citrus vulgaris*, there called naranja cajera. Both the tree and fruit are small, and the latter is of a deep green color. No other tree receives such care and cultivation on the island as this. The fruit itself is only used with syrup to make a sweetmeat, or dulce, as it is called. The skins are what are harvested for a constant market. At that stage of development of the fruit when the rind contains a maximum of oil, the fruit is picked and peeled in quarters, and the quarters are dried and pressed, and packed in half-barrels for export. The total product of the orchards in orange rind is shipped to Amsterdam, and the price paid varies from 80 cents to $2 per Dutch pound—a tenth more than the pound avoirdupois. By distillation, the oil is extracted from the skins or peel, and used to flavor the justly celebrated liqueur "curaçao." As oil may be extracted from the skins of all kinds of oranges, so they may be used to flavor liquors; and perhaps this accounts, to some extent, for the fact that "curaçao" is manufactured in Germany and France, and that the supply in the principal cities of the world is never behind the demand.

Considerable of the liqueur is shipped from Holland to Curaçao, and, so far as I have observed, only in bottles of a pint capacity, having necks as long as the bodies, and otherwise characterized as from the port to which the skins are shipped, but never in jugs or amphoras. I doubt that these "pints" are sold in the United States, customarily. I have never seen them so on sale, after inquiry.—Report by U. S. Consul at Curaçao.

Amorphous Borato of Quinine.

THIS is a salt prepared and put on the market by the well-known quinine manufacturer, C. Zimmer, of Frankfurt-on-the-Main. It is an amber-yellow powder, of faintly bitter taste, and soluble in an equal weight of water. It is administered in doses of 0.5 to 1 Gm. (8 to 16 grains), or in similar doses as other quinine salts. It is said to be well borne, both in chronic and in acute diseases, better even than the hydrochlorate, particularly if given in wafer-capsules, with water or a little wine. Its low price would seem to recommend its use in popular practice. —After *Pharm. Zeit.*

Liquefied Carbolic Acid.

DR. VULPIUS has investigated the conditions under which crystallized carbolic acid may be rendered permanently liquid.

Authorities heretofore have differed considerably in stating the proportion of water necessary to be added to crystallized carbolic acid, in order to make it remain liquid. These differences arose mainly from the fact that each author used an acid of different melting point.

The German Pharmacopœia allows a range between 35° and 44° C. for the melting point, and directs that "Liquefied Carbolic Acid shall be prepared by mixing 10 parts of the acid with 1 part of water. The resulting liquefied acid is stated to form a clear solution with 18 parts of water.

Hager, in his commentary, says that a quantity of water up to eight per cent insured the permanent liquefaction of the acid, even at medium temperature. And he further remarks that a mixture of 9 parts of the acid and 1 part of alcohol remains liquid, even when cooled to −10° C.

E. Schmidt, on the other hand, asserts that a monohydrated phenol, containing 15.9 per cent of water—melts at 16° C.

Dr. Vulpius used for his experiments the so-called absolute phenol (in loose crystals), melting over 40° C. He tried various proportions of water, alcohol, and glycerin, which were mixed with the gently melted acid, and obtained the following results.

Mixed with					
Carbolic Acid	*Water*	*Alcohol*	*Glycerin*	*Congeals at F°*	*C°*
parts	parts	parts	parts		
100	5	—	—	21	70
100	7	—	—	17.5	63.5
100	8	—	—	15	59
100	9	—	—	13.5	56.5
100	10	—	—	11.6	53
100	11	—	—	10.2	50.5
100	12	—	—	9	48.2
100	13	—	—	7.5	45.5
100	14	—	—	6.	42.8
100	15	—	—	4.5	40
100	20	—	—	2.2	36
100	5	—	5	18.5	65.5
100	5	—	10	15.5	60
100	—	—	10	27	80.6
100	—	5	—	29	84.2
100	—	10	—	19	66.2
100	5	5	—	14	57.2

These figures show the remarkable fact that the melting point of phenol is much less depressed by alcohol than by an equal quantity of water; and the latter is even superior to glycerin in liquefying power. It will also be seen that an addition of 10 per cent of water (to absolute phenol) is insufficient to keep the mixture liquid at moderately low temperatures. It will be necessary to increase the water to 15 per cent, but it is still better to use 20 per cent, since this facilitates calculation.

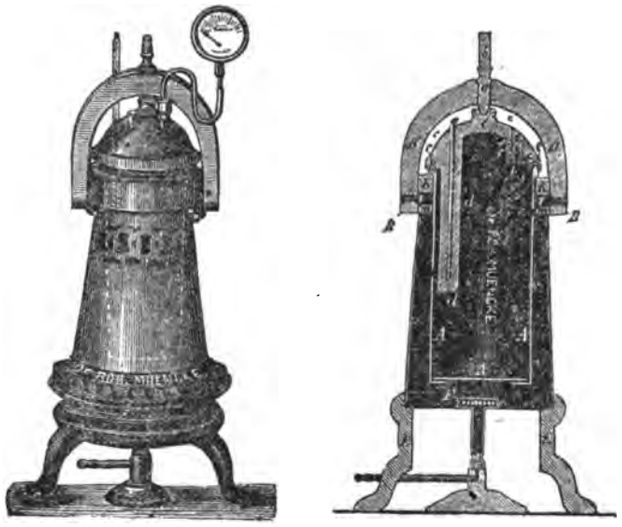
It need not be feared that this proportion would come too close to the extreme limit of water which carbolic acid is capable of taking up. The above experiments show, contrary to all authorities, that 100 parts of (absolute) phenol can take up a little over 36 parts of water, at 15° C. (59° F.) without becoming turbid.—After *Pharm. Zeit.*

A HIGH PRESSURE DIGESTOR FOR CHEMICAL LABORATORIES.

DR. ROBERT MUENCKE has found the usual flange-joint used for Papin's and similar digestors to be liable to leak and to get out of order.

The cylinder itself, *A*, is usually 20 cm. (8 inch.) by 9 cm. (3½ inch.), and its upper edge is conically turned off and ground true. A cast-copper head fits upon the cylinder, so that it straddles the edge of the latter, the recess being lined with lead. Below the edge of the cylinder *A*, a copper-ring is securely attached at the outside, in which are situated the bearings or hinges of the large steel stirrups *B*. In the centre of the latter is situated a screw which, when the stirrup is in a perpendicular position, firmly wedges the head of the digestor down upon the cylinder. Into the cover is cast a long thermometer-tube, into which a steel-tube fits containing mercury, and into the latter the bulb of the thermometer proper dips.

These apparatuses are made to stand 12, 25 and 50 atmospheres of pressure.



A High Pressure Digestor for Chemical Laboratories.

On Picrotoxin.

SOME years ago, Messrs. Barth and Kretschy found that when picrotoxin is repeatedly crystallized from boiling benzol and boiling water, it separates into two other substances, one of which they named picrotine, and picrotoxinin. They regarded these two substances as being present, side by side, in the commercial picrotoxin, and in fact to actually constitute this substance, the action of the benzol and water being held to be merely a mechanical separation by means of different solvents.

This view was afterwards opposed by Paterno and Oglialoro, who also studied the decomposition products of picrotoxin.

Recently, Professor E. Schmidt has published an elaborate paper on this subject, in which he gives at length his reasons why picrotoxin should be regarded as a positive, homogeneous individual, not composed of two or more bodies mechanically mixed, though easily decomposed chemically.

Among other peculiarities of picrotoxin is its behavior toward chloroform. If finely powdered picrotoxin be shaken with chloroform at the ordinary temperature, it is more or less completely dissolved, according as more or less menstruum is used. If the solution is filtered *soon*, and set aside in a well-covered vessel, a copious separation of fine, needle-shaped crystals takes place, which are found to be picrotin, while the liquid holds in solution chiefly picrotoxinin. In fact, the picrotoxin is now split into its two decomposition products. Had the latter been originally present as a mere mixture, the chloroform would [most probably] not have dissolved both together and deposited one of them again afterwards, but it would have dissolved the picrotoxinin (which is very soluble in chloroform), while it would have left the picrotin undissolved.

In addition to this peculiarity towards chloroform and benzol, Schmidt found it to be always—if carefully purified—of the uniform composition $C_{30}H_{34}O_{12}$; to have a constant melting point (199–200° C.; while a mixture of the two decomposition products does not fully melt until between 210° and 230° C.), and to be always anhydrous, while picrotoxinin crystallizes with 1 molecule of water.—After *Arch. d. Pharm.*, 222, 169.

Selections from the New York and Brooklyn Formulary.

ELIXIR FERRI PHOSPHATIS, QUININÆ ET STRYCHNINÆ.

Elixir of Phosphate of Iron, Quinine and Strychnine.

Phosphate of Iron (U. S. Ph. 1880)	256 gr.
Sulphate of Quinine	128 "
Sulphate of Strychnine	2½ "
Aromatic Spirit	6 fl. oz.
Water	4 "
Syrup	6 "
Simple Elixir	16 "

Dissolve the sulphate of strychnine in the aromatic spirit contained in a flask, add the sulphate of quinine, place the flask in hot water, and shake it well occasionally. Dissolve the phosphate of iron in *four* (4) *fluidounces* of hot water in a capsule; add the syrup and heat nearly to the boiling point. Then pour this hot solution, all at once, into the flask containing the alkaloids in solution, and shake well immediately. When cold, add enough simple elixir to make *sixteen* (16) *fluidounces*, allow it to stand for twenty-four hours, and filter.

Each fluidrachm contains two grains of phosphate of iron, one grain of sulphate of quinine, and $\frac{1}{60}$ grain of sulphate of strychnine.

Note. The sulphate of quinine will not all dissolve in the aromatic spirit, but will be immediately dissolved as soon as the hot iron solution is poured in. It is important that both solutions should be quite hot when mixed together.

Comments. The formula for aromatic spirit will be found in our last number, p. 106; for simple elixir, page 107.

In making the above preparation, the flask for dissolving the alkaloids in the aromatic spirit should be selected large enough to hold the whole product. If the aromatic spirit is heated not above 140° F., the alkaloids will not quite dissolve; but if the heat is higher, it will usually be found that a clear solution results.

When dissolving phosphate of iron, or indeed any other scaled salt in boiling or hot water, it should always be remembered that the salt is to be added, under stirring, to the hot water, and not the water to the salt. In the latter case, the scaled salt will usually agglutinate into a cake or lump at the bottom of the vessel, and it will require considerable time and trouble to dissolve it. It will therefore be best to mix 4 fl. oz. of water and the 6 fl. oz. of syrup in a capsule, heat to near boiling, and then to dissolve in the mixture the phosphate of iron.

On pouring this clear and greenish-colored solution into the alcoholic solution of the alkaloids, even if the latter was perfectly transparent, the mixture will become more or less opaque; rarely will it remain transparent. On agitating, the opacity will become less, but will not usually entirely disappear. It may, however, be quickly removed by adding to the mixture (best after cooling) enough water of ammonia, *in drops*, to accomplish the object.

This is one of the most awkward elixirs to filter, inasmuch as it renders the filtering paper very stiff and "resinous." If time is no object, it is best to allow the liquid to clear itself by settling, and then to siphon or pour off the clear elixir. Otherwise, a good deal of phosphate of calcium will have to be used. In this present case, however, phosphate of calcium, as well as magnesia and carbonate of magnesium, are not so well adapted to facilitate filtration as some other insoluble substances which are a little more gritty. One of the best is oxide of iron (or the ordinary subcarbonate) of which about 1 ounce will suffice to filter a pint of the elixir.

This could not, of course, be used if any acid had been employed in the preparation of the elixir.

The Committee had more trouble in devising a good formula for this elixir than for any other preparation, and its experience in this respect probably tallies with that previously made by others. All attempts to prepare a palatable elixir containing 1 gr. of sulphate of quinine per fluidrachm, by the acid of acids, failed—the bitter taste of the alkaloids quinine and strychnine being too disagreeably emphasized. It became evident that the employment of any acid must be avoided. Then it became necessary to find such an adjustment between the aqueous and alcoholic portions of the mixture, as to hold the alkaloids in solution after the mixture was completed. If the resulting mixture is opaque, this may be remedied by the *cautious* addition of water of ammonia. Each drop of this falling into the liquid will create a brownish spot, which will disappear on shaking. If too much ammonia is used, the elixir will become dark-colored more rapidly than would otherwise be the case.

Exposure to daylight will cause the color of the elixir to deepen in the course of time. It is therefore advisable to keep it in the dark.

Another elixir which is made in the same manner, and to which the same remarks apply, only that it contains sulphate of cinchonidine in place of sulphate of quinine, is the *elixir of phosphate of iron, cinchonidine and strychnine.*

SPIRITUS PHOSPHORI.

Spirit of Phosphorus.

(Tincture of Phosphorus.)

Phosphorus	10 grains.
Absolute alcohol, enough to make	15 fl. oz.

To the absolute alcohol, contained in a flask, add the phosphorus, which should be in clean, transparent fragments, and dissolve it by applying the heat of a water bath, taking care that the volume of absolute alcohol be preserved, as nearly as possible, until solution is effected. When cold, add enough absolute alcohol to make *fifteen* (15) *fluidounces.*

Keep the spirit in a cool and dark place, remote from lights or fire.

Each fluidrachm contains $\frac{1}{15}$ grain of phosphorus; 14.4 minims contain $\frac{1}{60}$ grain of phosphorus.

Note.—The loss of alcohol, during the heating, may be avoided, and solution effected more expeditiously by attaching to the flask a well-cooled, upright condenser, which will cause the vapor of the alcohol to be condensed, and to flow back into the flask.

Comments.—In selecting a piece of phosphorus for this purpose, only a perfectly transparent portion should be taken. If the outside of the stick is opaque and the interior yellowish but translucent, a piece may be cut out from the inner portion. For the benefit of beginners, we would add that phosphorus should always be handled with great caution. It should never be touched with the fingers, but a piece should be taken out, by means of a forceps, from the original jar (in which it is covered with water), and laid on a plate or into a capsule containing ice-water. If it needs cutting or trimming, this should be done while it is covered by water. When any portion of it is to be weighed, a suitable wide-mouthed bottle provided with a glass-stopper, and filled to a sufficient height with water, is balanced on the scale, and the requisite weight having then been placed in one scale-pan, pieces of the cut phosphorus are successively removed from the ice-water in which they lay, quickly dried upon blotting paper, and immediately dropped into the bottle of water. This is repeated—the bottle being stoppered each time—until the desired quantity is weighed off.

The unused phosphorus is then put away again. When an original package of phosphorus—usually a tin can—has once been opened, it is not practicable to replace the unused portion, and to solder it up again. To trust to any other method of preventing the evaporation of the water in the can would be very risky, and sooner or later result in the phosphorus taking fire. It is, therefore, under all circumstances, advisable to transfer all the remainder of the can to a stout bottle (Whitall, Tatum & Co.'s museum jars answer best) filling it with water and securely stoppering it. As a further precaution it ought to be kept in a jar of sand, chiefly with a view of protecting the glass from external violence.

During the digestion of the phosphorus in the hot absolute alcohol, the flask should be repeatedly agitated to promote solution. If made on the scale of the formula, or on a larger scale, it is always best to follow the suggestion given in the note, viz., to use an upright condenser. Any ordinary Liebig's or other condenser will answer for the purpose, if it is placed on a high enough level to permit its outlet to be connected with the neck of the flask. A good stream of water must, of course, be maintained through the condenser.

This spirit of phosphorus is of the same strength as the

Tinctura Phosphori, used in Bellevue Hospital, which is prepared in the same manner, except that it is flavored with vanilla and orange:

Phosphorus	32 grains.
Absolute alcohol	46 fl. oz.

Dissolve by heat, under an upright condenser; when cool, add

Tincture of vanilla	1 fl. oz.
Oil of orange	3 fl. drs.
Absolute alcohol, enough to make	48 fl. oz

A preparation which is very frequently prescribed is

Thompson's Solution of Phosphorus.

This is usually directed to be made as follows:

Phosphorus	1 grain.
Absolute alcohol	5 fl. drs.

Dissolve with a gentle heat; then add a previously warmed mixture of

Glycerin	1½ fl. oz.
Alcohol	2 fl. drs.
Spirit of peppermint	40 minims.

One fluidrachm of this solution contains $\frac{1}{15}$ grain of phosphorus.

The above solution may be prepared of the same strength in phosphorus by taking:

Spirit of phosphorus (N. Y. and Br. Form.)	348 min.
Spirit of peppermint	40 min.
Glycerin, enough to make.	2 fl. oz.

Each fluidrachm of this contains $\frac{1}{15}$ grain of phosphorus.

A much more pleasant solution for internal administration is now offered to the practitioner in the form of

ELIXIR PHOSPHORI.

Elixir of Phosphorus.

Spirit of phosphorus	30 fl. drs.
Oil of star-anise	16 min.
Glycerin	9 fl. oz.
Simple elixir, enough to make	16 fl. oz.

To the spirit of phosphorus add the glycerin and oil of star-anise, and shake until they form a clear liquid. Then add the simple elixir, in small portions at a time, gently agitating after each addition, until a clear mixture results.

Each fluidrachm contains $\frac{1}{15}$ grain of phosphorus.

SYRUPUS PHOSPHATUM COMPOSITUS.

Compound Syrup of the Phosphates.

("Chemical Food.")

Phosphate of Iron (U. S. Ph., 1880)	256 grains.
Precipitated carbonate of calcium	500 "
Carbonate of potassium	64 "
Carbonate of sodium	40 "
Citric acid	2 av. oz.
Glycerin	2 fl. oz.
Phosphoric acid (50%)	4 fl. oz.
Orange-flower water	6 fl. dr.
Tincture of cudbear	2 fl. dr.
Water	1½ fl. oz.
Syrup, enough to make	32 fl. oz.

To the mixed carbonates, in a capacious mortar, add the citric acid and triturate them with the glycerin. Then add the orange-flower water, about *twenty* (20) *fluidounces* of the syrup, and, gradually, the phosphoric acid. When effervescence has ceased, add the phosphate of iron, previously dissolved in the water, transfer the whole to a graduated vessel, rinse the mortar with a little syrup, add the tincture of cudbear and, lastly, enough syrup to make *thirty-two* (32) *fluidounces*. Let the syrup stand during several days, then strain.

Each fluidrachm contains about 2 grains of phosphate of calcium, 1 grain of phosphate of iron, and smaller quantities of the phosphates of potassium and sodium.

Comments.—The formula for "Chemical Food" as given by Parrish in 1857, and which has frequently been quoted in this and other publications, is very troublesome and circumstantial. Not only is a ferrous phosphate directed to be precipitated and washed, but even the phosphate of calcium is to be dissolved and freshly precipitated. It was usually found that the quantity of phosphoric acid originally directed was insufficient to dissolve all the salts or to hold them in solution. Hence it became customary to add some hydrochloric acid; but this increases the sourness of the preparation to a disagreeable extent.

Recognizing the fact that the preparation is frequently called for, and that a formula should, if possible, be devised which would admit of execution within a short time, the writer proposed a new method in the *Report on the Revision of the U. S. Ph.* (New York, 1880, p. 142), in which the precipitated *ferric phosphate of iron* was employed and the phosphates of calcium, potassium, and sodium were *generated*, by acting on the carbonates with a sufficient quantity of phosphoric acid. Since the new U. S. Ph., however, has adopted a soluble phosphate of iron, in scales (which might be called "sodio-ferric citro-phosphate"), a further modification of this formula became desirable. At the same time, the proportions of the ingredients were so adjusted as to furnish *about* the quantities of compounds given at the end of the above quoted formula. That is, if we suppose the citric acid to act merely as a *solvent* of the phosphates, and that all the calcium, potassium, and sodium is combined with phosphoric acid, we would, for instance, find that the 500 grains of carbonate of calcium ($CaCO_3$; mol. w. 100), when converted into tribasic phosphate of calcium ($Ca_3[PO_4]_2$; mol. w. 310), would yield 517 grains of the latter. There are only 512 grains needed to give 2 grains to a teaspoonful; but it was not worth while to curtail the round figure 500 by a few units to bring out the calculation so exactly.

When the phosphate of iron has been dissolved in the water, which is best done by the aid of heat, it is necessary to wait until the solution is cold before pouring it into the solution of the phosphates, since otherwise a precipitate largely consisting of citrate of calcium will be produced.

If the solutions are mixed cold, the mixture will remain clear, at least for some time. But after standing for a few days, more or less of a cloudiness will usually form in the liquid, no matter how carefully it is made. This cloud will gradually settle to the bottom, and generally forms a very small layer, which does not sensibly alter the percentage composition of the preparation. We have examined the precipitate several times cursorily, and have found it to consist chiefly of glucose (with phosphate), which no doubt originated from the action of the excess of phosphoric acid upon the cane sugar of the syrup.

ELIXIR ANISI.

Elixir of Anise.

(Aniseed Cordial.)

Oil of anise, Saxon	25 min.
Oil of fennel seed (sweet)	5 "
Oil of bitter almonds	1 "
Deodorized alcohol	4 fl. oz.
Syrup	10 "
Water	2 "
Phosphate of calcium	120 grains.

Mix the oils with the deodorized alcohol, add the syrup and water, and set aside for twelve hours. Then mix the elixir intimately with the phosphate of calcium, and filter through a well-wetted filter, returning the first portions of the filtrate until it runs through clear.

Note.—Oil of star-anise, which is usually supplied by dealers when "oil of anise" without further specification is ordered, does not answer well for the above cordial. Russian oil of anise may be used, but the Saxon oil furnishes the finest product.

Comments.—A knowledge of the different commercial varieties of essential oils, their origin and source, and their value is not as well disseminated among the pharmacists of this country as it should be. The fault lies, to a great extent, with the wholesale druggists, who fail to make proper discrimination or distinction in their catalogues or price-lists. The buyer usually thinks that he has sufficiently specified the quality he wants by attaching the word "best" to his order. But this implies really a very poor compliment to the dealer, inasmuch as it suggests the inference that the latter keeps several *grades* of purity of this or the other oil of which the purchaser has the choice. When oil of anise, for instance, is ordered, there are three different commercial kinds which can be supplied. They are:

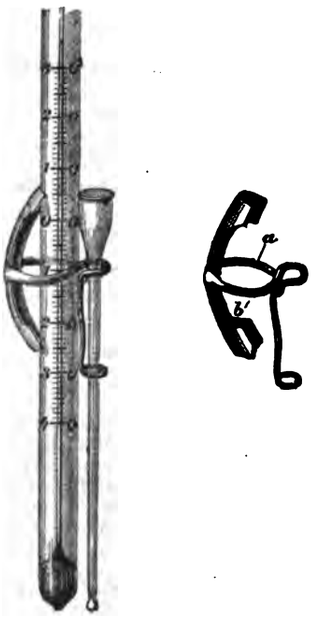
1. Russian oil of anise.
2. Saxon " " "
2. Oil of star-anise.

If the latter is worth, say $1.75 per per pound, the Russian will be worth about $4.00 and the Saxon oil about $3.50. (Of course, these prices are only *relatively* correct. In reality, the oils are proportionately somewhat higher, particularly when purchased in quantities of less than about ten pounds.) Of late years, a good deal has been done by prominent manufacturers of and dealers in essential oils to spread a better knowledge of this subject among the members of the profession. Yet much more remains to be done.

Regarding oil of fennel, it should be known that there are two kinds made by manufacturers, namely, the so-called "sweet" oil of fennel, which is distilled from the seed exclusively, and is the only kind fit for fine purposes. The other kind is the so-called oil of fennel chaff, distilled (as the name implies) from all the rubbish left after sifting fennel, and this is used in making certain kinds of cheap liquors and confectionery. Its price is less than half of that of oil of fennel seed.

Oil of bitter almonds is frequently sophisticated by the admixture or substitution of the artificial oil—nitrobenzol, oil of mirbane—the presence of which may, however, easily be detected by applying the test given in the U. S. Ph.

When aniseed cordial, prepared by the above formula, is exposed to cold, it is apt to become opalescent or milky, since the liquid then cannot hold all the oil in solution. As soon as the temperature, however, rises, it will become completely clear again. The opalescence may be prevented by filtering the elixir while quite cold, although a little of the oil is thereby lost.



APPARATUS FOR DETERMINING MELTING POINTS.

ALFRED KOLLIKER has devised a clamp for attaching the little tubes used in determining melting points to the thermometer. It is readily understood by inspecting the illustration.—*Zeitsch. Anal. Chem.*, 1884, 205.

[The original used by the author was made of platinum sheet and wire, and this metal will, no doubt, be best when the apparatus is to be plunged into hot liquids of an acid or corrosive character. Otherwise, a cheaper material will answer as well.]

Strychnine asserted to be a Mixture of Three Alkaloids.

SCHUETZENBERGER has maintained that strychnine is not a uniform body, but a mixture of three alkaloids, which latter were said to be distinguishable by their varying percentage of carbon, different solubility, and crystalline shape. Dr. Hager now states that Schützenberger's view appears to be correct. He concludes this from the fact that, if a few drops of a solution of nitrate of strychnine in warm water be allowed to evaporate upon a microscope slide in a lukewarm place, the field will be seen, under a lens magnifying one hundred diameters, to contain three to four different forms of crystals, octahedrons, combinations of octahedrons with cubes, also columnar and triangular prisms. He promises to publish illustrations of these in his Commentary to the Germ. Pharmacopœia.—*Pharm. Centralh.*

[We cannot agree with Dr. Hager in considering these different crystalline shapes to be a positive proof of the multiple composition of strychnine in general. At most, the particular sample might be supposed to contain different bodies. Until the supposed alkaloids are separated and their difference is absolutely demonstrated otherwise, we shall have to adhere to the opinion that strychnine is a homogeneous and well characterized alkaloid of constant composition.—ED. A. D.]

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 7. WHOLE No. 121.

FRED'K A. CASTLE, M.D., - EDITOR.
CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY
WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

JULY, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00
SINGLE COPIES, - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

THE *Pharm. Zeitung* of March 1st contains a communication from a German drug firm in San José de Cúcuta, in which they draw attention to an antidote "prepared from plants," against hydrophobia, bite of poisonous snakes, intermittent fever," etc., by Mr. Juan de Jesus Salas. Among other testimonials in its favor it is stated that President Guzman Blanco authorized the Government of Venezuela to purchase 4,000 bottles of the remedy for the troops, "in order to employ it eventually against fevers etc." The inventor of the compound has given it the name "Curare," which must, however, not be confounded with that of the well-known arrow-poison.

Of course, the *Pharm. Zeitung* merely publishes the letter of their correspondents and leaves the reader to draw his own inferences. We, on our part, infer that the matter is not deserving of further consideration. Our only object in publishing this note is to caution our readers against the possible appearance on the market of a species of "Curare" of the above description. However, we all know that "et errare, et curare, humanum est."

WITH increasing competition on the part of legitimate pharmacists, as well as grocers and general storekeepers, there is reason why every retail druggist should develop with some care the available resources of his business and look after the little things that save the pence. Of late years, the sale of carbonated beverages, when properly conducted, has added considerably to the annual receipts; but this, like other things which pay a profit, has been adopted by other dealers, and, like the sale of "patents," may soon be classed among the things that have had their day.

We have lately noticed three additions to the variety of beverages which might be added to the list of things already found in most pharmacies, viz., distilled water, iced tea, and *consommé*.

Already there is established in New York a firm who supply distilled water, in siphons, charged with carbonic acid gas, which has an extensive sale among those who are somewhat fastidious respecting the purity of their drinking-water, or who have occasion, on account of kidney troubles, to drink water as free as possible from saline matter. It would require but a small outlay for a tin-lined still and condenser and bottles to supply a pure water saturated at atmospheric pressure with carbonic acid at a living profit, and one merit of the business is the small likelihood of the business meeting with competition outside of the drug trade.

The use of iced tea as a summer drink has not yet attracted the attention it deserves. In the case of most people it proves more refreshing and palatable than the carbonated waters and syrups usually dispensed, and during hot weather the mild stimulation afforded by the tea takes the place of that derived from alcoholic drinks. Some such stimulant is generally craved when the nervous system is exhausted by a prolonged high temperature and an infusion of tea made from the best grade of oolong, slightly sweetened and with a slight flavor of lemon or of lemon verbena, makes a drink, when well iced, that is extremely gratifying and successful as a quencher of thirst and a "pick-me-up" on a hot day.

The beef-tea or the soup-stock called *consommé* has already gained a foothold in New York clubs and saloons as a winter beverage. In the latter, it is very often made by stirring a teaspoonful of beef extract in a glass of hot water; but it is by no means so palatable or refreshing when thus made as when prepared from fresh meat. Aside from its sale as a beverage, there are few communities where it might not pay to furnish it for the use of invalids. The demand for it as a beverage would naturally be greatest in cold weather, when the trouble of keeping it would also be the least; but its use among the sick could be depended upon all through the year.

THE advent of hot weather may account, in some degree, for the general depression of the business of selling "patents," but there is a growing disposition among pharmacists in New York City to blame the trade movement as well. "Too much previousness" in the verdict one generally hears when the subject is discussed, and the general impression prevails that the only ones who have secured any profit as yet are the scalpers. A considerable number of those who joined the movement at the outset openly announced their retraction from the agreement before the ink was fairly dry, and still a larger number have decided to say nothing more about it and return to the "flesh-pots of Egypt," with as little publicity as possible. The effect upon jobbers and retailers seems to have been to considerably reduce the sale of patents, as a whole, so that something has at least been gained by the public.

Note on Cod-liver Oil Emulsion.

WE have received a communication from MR. THEODORE LOUIS, of New York, in which he informs us of his experience with the formula for stock emulsion of cod-liver oil (emulsio olei morrhuæ fortior) of the New York and Brooklyn formulary. (Compare our last number, page 107.) He says:

"In preparing the emulsion according to the note attached to the formula [see above, page 107], I did not succeed to my satisfaction, the emulsion not being quite perfect, and taking considerable time and exertion. I *manipulated*, after two not quite satisfactory trials, in a different manner, and succeeded, not only with a faultless result, but with comparatively less labor, *and in less time*. And what is a still more pleasing, even important factor to a dispensing pharmacist who is so often interrupted in his labors, especially at a time when it is most inopportune, is the fact that an interruption *does not endanger* the emulsifying process.

"I first prepared in a suitable capacious mortar, and *lege artis*, an emulsion from 2 oz. of acacia, 4 fl. oz. of cod-liver oil, and 3 fl. oz. of water. I then mixed with this the 4 oz. of powdered sugar, and then added gradually, and under constant trituration, alternate portions of the remaining 5 fl. oz. of water and 12 fl. oz. of cod-liver oil in quantities of about one or two ounces at a time.

The result is a perfect, faultless emulsion, and the time required to prepare it is only ten to fifteen minutes."

Ferrated Extract of Beef.

AT a recent meeting of the physicians of Posen (Germany), a new iron preparation was shown which appeared to impress the members present very favorably, inasmuch as it is very readily absorbed; does not injure the teeth, and has a mild and pleasant taste. It has also been tried practically in public institutions. The preparation is made and sold by Dr. Papilsky. It is an extract of beef containing 10 per cent of soluble saccharated oxide of iron.—*Pharm. Zeit.*

Black Stamping-Ink.

SINCE rubber stamps do not readily take an ink containing oil, the compound used for this purpose is prepared with some kind of soluble black and glycerin. The best for this purpose is a so-called "tannin-black" manufactured by L. Seydel (according to a correspondent in the *Pharmaceutische Zeitung*).

The following formula is said to yield a black stamping-ink equal in depth and gloss to the best printer's ink, the impressions of which dry rapidly on paper, while the ink does not become hard or dry on the pad:

Dissolve 100 parts of "tannin-black" in a mixture of 100 parts of water and 200 parts of glycerin, with the aid of heat (water- or sand-bath), and under constant stirring. The syrupy solution keeps well without alteration.

The Assay of Sweet Spirit of Nitre.

IN an interesting paper on this subject in the *Pharm. Journal* of April 12th, Mr. D. B. Dott discusses the various processes heretofore proposed or used for assaying the strength of sweet spirit of nitre, that is, estimating the quantity of real ethyl nitrite present.

Of the "separation test," by means of saturated chloride calcium solution, he pronounces an opinion fully coinciding with our own, namely, that it should be altogether abandoned, since even a genuine preparation will, after some time, fail to separate any ethereal layer when agitated with it, though it may remain medicinally active.

The only apparently reasonable test is that which accomplishes the estimation of the total nitrous acid, no matter whether this is in combination as ethyl nitrate, or whether it is in a free state. Even the latter has some share in the physiological action of the preparation, and it is likely to be present only in small proportion, since the Pharmacopœia permits only traces of it to be present. Of the many methods proposed for this estimation, probably the best is that devised by Prof. Eykman, of Tokio. Yet this is not absolutely perfect, Mr. Dott finding that it yields results below the truth, and it also includes any nitric acid that might be present. Besides, the process is not adapted for ordinary use, since it requires the samples to be brought to the laboratory, where alone the apparatus can be adjusted and properly taken care of. After some further remarks on other methods, Mr. Dott finally says:

After innumerable experiments, I have been compelled to return to the method which suggested itself to me first of all, viz., the liberation of iodine from potassic iodide, and titration of the iodine with sodium thiosulphate. The only mention I have seen of the use of potassium iodide as a means of estimating spiritus ætheris nitrosi is reported in the *Pharmaceutical Journal*, 3, x., 93.

In the discussion after the reading of Dr. Dupré's paper, Mr. Hehner suggested the use of iodide of potassium added directly, with the addition of acetic acid, which was thought a good idea. The process is so obvious that it has probably often been tried and abandoned, which is not surprising, as without particular precautions it yields results which have no resemblance to the truth. In endeavoring to put this test into practical form, I very soon found that the only way of arriving at right results was to work with a solution of ethyl nitrite of known strength, at least in the first place. We therefore purified some of the nitrite by a method similar to that described by Mr. Williams. At 60° F., it had a specific gravity of .901 (or thereby). Mr. Williams gives the gravity at .937, but states no temperature. At all events, though it was not analyzed, I am confident that it must have been very nearly pure. Ten Cc. were diluted to one hundred Cc. with "absolute" alcohol, and this solution was used in the following experiments:

(1.) Five Cc. = 0.45 gramme $C_2H_5NO_2$ added to an aqueous solution of twenty grs. potassium iodide, one drm. dilute sulphuric acid then mixed therewith, and after half an hour standard thiosulphate run in, required 28.0 Cc. = 0.21 gramme $C_2H_5NO_2$. This low result was caused by loss of ether, which is thrown to the surface of the saline solution. It is hence evident that some solvent must be used to retain the ether.

(2.) In this case, the same quantities were used, but before the addition of the ethereal solution, 1 fl. oz. rectified spirit was mixed in. The solution was allowed to stand ten minutes before running in the thiosulphate. Required 113.5 Cc. = 0.851 gramme $C_2H_5NO_2$. This high indication was caused by the nitric oxide which must be completely removed before the titration. It is essential that the NO be got rid of, not only from the alcoholic solution, but also from the atmosphere in the containing vessel, as otherwise, by uniting with the oxygen to form higher oxides, and these in turn reacting with the water to form nitrous acid, an additional quantity of iodine is liberated. Using the same proportions as just mentioned, but employing a large flask, and diligently agitating during the addition of the thiosulphate solution, nearly three hundred Cc. were used before decolorizing.

(3.) In this experiment, the same quantities were used as in (2), but acetic acid instead of sulphuric, the solution being allowed to stand one hour. Required of thiosulphate 21.6 C.c. = 0.162 gramme $C_2H_5NO_2$, which is far too low. Acetic acid, as suggested by Hehner, will, therefore, not do.

(4.) Several experiments were tried, passing carbonic anhydride into the test solution contained in a flask. The gas was passed before addition of the acid, and the stream continued until the completion of the titration. In other cases, the CO_2 was passed only into the air space above the liquid. In all these instances, the results obtained were too low and very variable, possibly on account of the gas carrying away some of the ether.

It would be tedious to describe the different devices that have been tried, to insure, if possible, an accurate result. Suffice it to say that, as an inference from numerous experiments, the following method was adopted as the best: Let 1 gramme of iodide of potassium be dissolved in 10 C.c. of water. Then add 20 C.c. of rectified spirit, and to the solution so obtained add 5 C.c. of the spirit to be tested. Now pour in 5 C.c. dilute sulphuric acid, and allow to stand for an hour; then titrate with standard thiosulphate.

The operation is best conducted in an eight-ounce porcelain basin. The following are some of the results obtained:

5 C.c. used in each case	$\frac{1}{10}Na_2S_2O_3$ solution	$EtNO_2$ Gms.	$EtNO_2$ (vol.) per cent
(a) 10 per cent (vol.) solution in alcohol	59.5 C.c.	= .446	= 9.91
(a) 10 per cent (vol.) solution in alcohol	59.8 C.c.	= .448	= 9.96
(a) 10 per cent (vol.) solution in alcohol	60.0 C.c.	= .450	= 10.00
(b) S'ple sp. æth. nit. (recent)	26.5 C.c.	= 198	= 4.41
(b) S'ple sp. æth. nit. (recent)	26.8 C.c.	= 201	= 4.46
(c) S'ple sp. æth. nit. (4 months)	23.5 C.c.	= 176	= 3.91
(c) S'ple sp. æth nit. (4 months)	24.0 C.c.	= 180	= 4.00

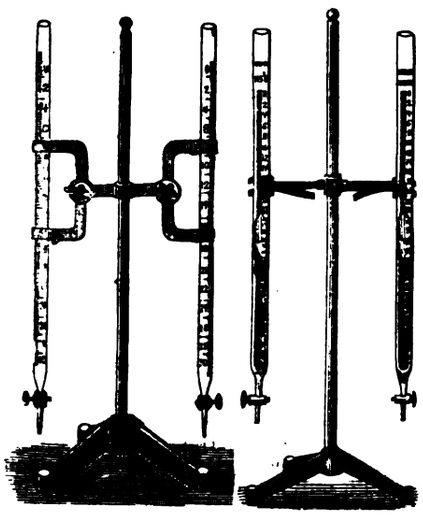
Although formerly indicated, it may again be noted that the total nitrous acid is given as ethyl nitrite. The older sample contained much more free acid than the fresh one. The method employed is evidently only approximate, but it may serve until something better is devised. It has, at any rate, the advantage of requiring only such apparatus and reagents as are in common use.

Liquid Carbonic Acid.

CARBONIC acid gas, in liquid form, is coming more and more into use on the continent of Europe for various technical purposes. Being concentrated to so small a bulk, its transportation is comparatively cheap, although the great pressure under which it is contained in the cylinders requires special precautions in working with it.

Remedy for Toothache.

MELT 2 parts of spermaceti or wax and dissolve in it 2 parts of chloral hydrate and 1 part of carbolic acid. Dip pieces of cotton into the mixture and let it cool. For use, detach a small quantity, soften it with a gentle heat, and press it into the hollow tooth.—*Rundsch. f. Pharm.*



BURETTE HOLDER.

FIG. 1 represents a two-armed burette holder, each half of which consists of a double E-shaped piece of sheet-iron, between the slightly curved ends of which the burette is held. One side of this sheet-iron frame is stationary, and attached to the bearing part of the set screw. The other part is loose, and may be adjusted, by means of the screw, so as to accommodate large or small burettes.

Fig. 2 represents the practical application of the burette clamps described by us in our last April number, p. 69. It will be noticed that these clamps do not cover the front of the burette where the scale is engraved.

Both of these holders are devised and manufactured by Dr. Robert Muencke, of Berlin.

German Vaseline.

ACCORDING to Oswald Saalberg in Zwickau, all the vaseline manufactured in Germany is an artificial product, being composed of eighty to eighty-five per cent of mineral oil (liquid paraffin) and twenty to fifteen per cent of ceresin. The color of the product, of course, depends on the color of the several constituents.—*Chem. Tech. Centralanz.*

Benzoate of Sodium.

HAGER gives the following direction for distinguishing benzoate of sodium made from benzoin-benzoic acid from that made with artificial or toluol-benzoic acid.

Evaporate a few drops of a $\frac{1}{100}$ per cent solution of the benzoate in alcohol of 60% upon an microscope slide between 20° and 25° C. If the benzoic acid was derived from benzoin, the glass will be found, with a magnifying power of one hundred to two hundred diameters, to contain convex heaps of crystals, from the edge of which here and there small crystalline rays may project. If the benzoic acid was derived from other sources, the object-glass contains crystalline groups in which those convex heaps form the base, but instead of crystalline rays, they send forth handsome, curved, feathery bunches, which exceed the heaps by two or three times their length. The whole field represents a crystalline group, since the feathery bunches coalesce.—*Pharm. Centralh.*

Apparatus for Generating Bromine Vapor.

IN our last volume (NEW REM., 1883, 297), we described an apparatus devised by A. Frank, for utilizing bromine as a disinfectant. In order to make it applicable for medicinal purposes, the apparatus has recently been modified by Dr. Frank [the same who obtained the original patent]. In the new form, it is very serviceable for inhalations in diphtheria, or for applying the vapor to wounds, etc.

To the large, hollow stopper *L* of the flask, a rubber-blowing apparatus is attached. To the end of the bent tube *H*, a short glass-tube, rounded off at its outer end and perforated with a small hole, is attached by means of stout rubber-tubing. A cork or rubber-stopper is slid over the short glass tube to such a distance that, when the cork is held between the teeth of the patient, the orifice of the tube is at a suitable distance from the part of the throat where the vapor is to be applied. The bromine vapor is developed by blowing air into the flask upon the cake of infusorial earth (Kieselguhr), by which the bromine has been soaked up. The quantity of bromine delivered may be regulated by the force of the current of air. A stop-cock may be applied to the tube *H*, either for more exactly regulating the current of vapor, or for preventing the latter from escaping when the aparatus is not in use. —*Pharm. Centralh.*

Pure Cannabine.

SOME time ago, the tannate of cannabine was highly recommended as a safe and prompt soporific, and apt substitute for morphine (see NEW REM., 1883, page 40). But, as the tannates of organic principles have a very indefinite composition and are of utility only where it is desirable to mask the disagreeable taste of the principle itself. Mr. Eugene Bombelon, of Neuenahr, proposes to abandon the use of the tannate and to employ pure cannabine instead. He first prepares the tannate by precipitation, then decomposes this with oxide of zinc, and extracts the cannabine, which is obtained as a greenish-brown, air-dry, non-adhesive powder, volatile, without residue upon platinum foil. It is a prompt soporific in doses of 0.05 to 0.1 Gm., without previously excitation; the tannate acts very unequally and is only effective in large doses of 0.3 to 1 Gm., and even more.

Pure cannabine is tasteless, entirely insoluble in water, but easily soluble in alcohol, ether, and chloroform.

Artificial Ivory.

THE *Chronique Industrielle* gives the following description of a new process for making artificial ivory from the bones of sheep and goats, and the waste of white skins, such as kid, deer, etc. The bones are macerated for ten or fifteen hours in a solution of chloride of lime, and afterward washed in clean water and allowed to dry. Then they are put with all the scraps of hide, etc., into a specially constructed boiler, dissolved by steam so as to form a fluid mass, to which is added two and a half per cent of alum.

The foam is skimmed off as it rises until the mass is clear and transparent. Any convenient coloring material is then added, and while the mass is still warm it is strained through cloth of appropriate coarseness and received in a cooler, and allowed to cool until it has acquired a certain consistency, so that it can be spread out on the canvas without passing through it. It is dried on frames in the air, and forms sheets of convenient thickness. It is then necessary to harden it, which is accomplished by keeping it for eight or ten hours in an alum bath that has been used before.

The quantity of alum necessary for this operation amounts to fifty per cent by weight of the gelatin sheets. When they have acquired sufficient hardness, they are washed in cold water and dried on frames as at first.

This material works more easily and takes as fine a polish as real ivory.

The Nomenclature of the Solanaceous Alkaloids.

OWING to the confusion apparently reigning among the names of solanaceous alkaloids appearing in commerce, Prof. Ernst Schmidt makes a very timely suggestion which should by all means be generally adopted.

Schmidt's and Ladenburg's researches have demonstrated that both belladonna and stramonium contain two alkaloids, namely, *atropine* and *hyoscyamine*. A *daturine* is no longer recognizable as entitled to a separate existence, though it is still commonly quoted on the lists of manufacturers. The crude daturine heretofore known as such consisted in its larger portion of atropine; and pure daturine, such as is still sometimes met with, is nothing else but pure atropine. Aside from the secondary alkaloid hyoscine, there are hence only two mydriatic alkaloids to be distinguished, namely, *atropine* (melting point 115°–115.5° C.) and *hyoscyamine* (melting point 108.5° C.). Duboisine, in its pure state, is, according to Ladenburg, identical with hyoscyamine; and belladonnine is probably a mixture of atropine with oxyatropine. —*Arch. d. Pharm.*, 222, 329.

Glycerin and Codeine Jelly.

DR. G. S. MAHOMED recommends a preparation consisting of codeine, with citric acid, tolu, and glycerin, as a local remedy in certain throat affections. The proportions are not given.—*Br. Med. Journ.*

The Action of Sulphuric Acid upon Iodide of Potassium.

IT has long been known that the action of sulphuric acid upon iodide of potassium produces hydrosulphuric, sulphurous, and hydriodic acids, sulphate of potassium, and water, in varying proportions, depending on the relative quantities of the two substances.

If a large excess of sulphuric acid is used, iodine is set free in equivalent proportion to the sulphurous acid, and water and acid sulphate of potassium are formed:

$$2KI + 3H_2SO_4 = 2I + SO_2 + 2KHSO_4 + H_2O$$

(iodide of potassium; sulphuric acid; iodine; sulphurous acid; acid sulphate of potassium; water)

If only just enough sulphuric acid is added to decompose the iodide of potassium, the whole of the iodine is set free, and an equivalent proportion of hydrosulphuric acid is formed:

$$8KI + 9H_2SO_4 = 8I + H_2S + 8KHSO_4 + 4H_2O$$

(iodide of potassium; sulphuric acid; iodine; hydrosulphuric acid; acid sulphate of potassium; water)

In order that these reactions may be fully carried out, the sulphuric acid must be raised to boiling in a flask or retort so arranged that the upper part of it is filled with vapor of the acid; in this way the complete oxidation of the hydriodic acid is insured.—HERBERT JACKSON, in *Journ. de Ph. d'Als.-Lorr.*

SIMPLIFIED CARBONIC [OR UREA] APPARATUS.

DR. G. LOGES describes a modification of Scheibler's carbonic acid apparatus, rendering its construction more simple. The outer vessel may be an ordinary wide-mouth bottle of 15 Cm. (6 in.) in height and 6 Cm. (2⅜ inches) in diameter. Through the perforated rubber stopper passes a glass tube, to which is fused a cylindrical glass tube of about 8 Cm. (3⅛ in.) long and 2.5 Cm. (1 in.) in diameter, having a lateral opening and shoulder for pouring out from near its upper end; also a scratch or mark for the requisite amount of acid it is to hold. The substance to be decomposed is put in the flask, the inner glass-cylinder charged with acid, and the apparatus put together, whereupon the acid is made to run out upon the substance.—*Z. f. Anal. Chem.*

New Uses of Oil of White Birch.

THE oil of white birch-bark (oleum betulæ), which gives to Russia leather its peculiar aromatic and lasting qualities, when dissolved in alcohol, is said to be excellent for preserving and waterproofing fabrics. It renders them acid and insect-proof, and does not destroy the pliability of the fabric.—*Chem. and Drugg.*

Treatment of Hoarseness in Speakers and Singers.

M. CORSON advises the placing in the mouth of a piece of borax, about two or three grains; it produces an abundant salivation, and the voice becomes clear. He also recommends the use of a couple of grains of potassium nitrate in a glass of sugar and water, or an infusion of forty-six grains of jaborandi, and—shortly before using the voice—of a gargle with six or seven ounces of a decoction of barley, one to two drachms of alum, and two drachms of honey of roses.

Ginseng Cultivation in Japan.*

SOWING AND MANURING.

THE seed of ginseng may be sown twice a year, namely, during the vernal and autumnal equinoxes; but in this district (village of Meiyama, county of Aidzu, province of Iwashiro, about 37° N. latitude, 140° E. longitude from Greenwich) the seed is usually sown during the autumnal equinox. The land on which the seed is to be sown is permitted to lay fallow for one year, and during the year following the grass is cut and buried in the soil for the purpose of fertilizing it.

In April of the same year the land is plowed. Before the period called Taisho (commencing about the 22d day of July) begins, horse manure and straw used in the stables are spread over the surface and the clods of earth are broken up, and the land is divided into mounds, each about 3 feet broad, for sowing purposes. By means of the *meita*—a board about 2 feet in length, 1½ feet in breadth, in which is inserted a stick about ½ foot long, sharpened at one end—the surface of mounds is smoothed and the seed is sown in drills made with the *meita*. After sowing, the surface of the mounds is lightly swept with a broom, and, in order to protect the surface from the sun, straw about 1 foot thick is spread over it. Before the period called Ko Kun (commencing about the 20th day of April of the ensuing year) begins, the straw is removed, and on both sides of the mounds sticks about 5 feet long are erected about 6 feet apart, on which cross-bars are placed, over which straw mats are laid to protect the surface of the mounds from the sun, the sticks on the north side of the mounds being higher than those on the south. Until the period of Taisho (about the 22d day of July) returns, the ground must be kept carefully weeded, and during the first two years the soil between the shoots of the ginseng must be hoed about seven or eight times, after which no weeding is required on account of the shoots being considerably grown.

When the period called So Ko (commencing about the 23d day of October) begins, the color of the leaves becomes yellow, and the straw mats should then be removed. Twenty days after the period called Doyo, which begins about the 18th day of January and continues seventeen or eighteen days, the field should be manured. The quantity of manure for every tan (about ¼ acre) should be one *kan* and two hundred *me* (= 7½ catties = 10 pounds) of oil-cake, 6 sho (1 sho = 109.752 cubic inches, Hepburn's Dictionary) of rice-bran, and a quantity of night soil diluted with water. The quantity of manure for every *tan* must be doubled in the second year, and trebled in the third year. In July of the fourth year the roots are dug up and dried. Ginseng is, during its growth, attacked by the mole, the rat, and a worm about 2 inches long, called *hari-gane-mushi* (wire-worm), from its resemblance to a piece of wire. Of these the mole burrows in the field and overturns the roots of the ginseng, so that the plants finally die; the rat follows the holes made by the mole and eats the roots, consequently the latter is more injurious than the former. The following means are used to protect the plants against these pests:

In order to prevent the mole from burrowing, boards about one foot square are inserted in the ground on all sides of the mounds so as to stop up the holes, or jars are buried here and there between the mounds, or pit-falls are made in the holes. In order to keep off the rat a bamboo tube filled with gunpowder is placed in the mole hole and the powder ignited, and the smoke remaining in the hole, prevents the rat from approaching. In order to protect the roots from injury by the *hari-gane-mushi* (wire-worm), onions, leeks, or dai kon (a kind of large radish) are planted between the mounds about one foot from one another; and when the worms attack these vegetables the vegetables are pulled up and the worms killed. These vegetables are planted for the purpose of attracting the worms.

PREPARATION.

The roots of ginseng having been dug up, a portion of the stem about 3 inches long is cut off and the roots are washed in water with a brush.

Then the fibrous portion of the root about 1 inch long is removed—these fibers, called *moniku* (literally hair flesh), are used as a medicine, and the remaining parts are scraped with a bamboo knife, for the purpose of removing the particles of soil.

After these steps have been taken, all the roots are classified into five species or grades, according to their qualities. Those roots which are large but injured, are called Omaré (literally large and rare), and those which are small and injured, Sho maré (literally small and rare). The *moniku* or fibres are sometimes classified at the sixth and seventh species. All the roots are then put upside down into baskets made of bamboo, each containing about one *kammi* (8.33 pounds) in weight of the roots. The baskets are thon placed for five minutes in a liquid specially prepared, and which is boiling.

In preparing the liquid the following steps are prescribed: 5 *momme* (= 1/16 pound = ½ ounce) of ginseng, manufactured in the preceding year, 25 *momme* of licorice root, and 25 *momme* (3½ ounces) of *shai-shin* (a drug) are thrown into two (2) *tó* and 5 sho, or 25 sho (about 10 gallons) of water, and when the color of the water becomes brownish, the residue of these substances is removed and 7½ *Go* (1 *go* = 53.475 cubic inches) of alcohol is added to the liquid. The roots of the lowest quality of ginseng are first boiled in the mixture and then all the other species are successively boiled therein, from the lower to the higher qualities.

They are immediately dipped into cold water, and when entirely cooled they are dried.

After ten baskets of ginseng have been boiled the liquid should be changed. A place open to the sunlight is to be selected for drying the ginseng.

The process consists in setting up a shelf with a shade made of split bamboos. On the shelf the roots are dried. During the daytime the roots must be turned over six or seven times; at night they are kiln-dried.

After about three days the skin becomes tolerably dry, and the roots become pliable. The stems and fibres are then entirely removed and the crooked roots are straightened.

After this, they are again dried for four or five days; if the weather be rainy, they are kiln-dried. The whole process of preparation now being completed, it remains only to put them in cases, first wrapping them in thick paper.

The quantity of seed required for planting one acre is about half a bushel.

* Report on method of cultivating ginseng, written by Yamaguchi Sheiguro, and forwarded by Minister Bingham. Translated by Mr. Whitney, Interpreter, U. S. Legation.

Wax Matches.

AT the Nice exhibition were two machines employed in the manufacture of wax matches and match boxes, shown by M. Perrier, Marseilles. The first of these is used to cut the matches to the proper length. The wick covered with the wax coating is wound in long lengths upon the reels, one placed above another, and revolving freely. These reels are divided around their circumference and for their whole length into separate compartments, in each of which the match material is wound. Altogether, in the machine shown, there are one hundred independent lengths, fifty on each reel, and each length is brought to the front of the machine through a row of horizontal guides, placed at equal distances apart. Here they are held, and a slight reciprocating and intermittent motion is given to them, in order to feed them forward at each stroke. In front of the machine provision is made for holding a stout wooden frame, having, however, only three sides, the two vertical sides being slotted to receive the ends of a number of narrow wooden strips covered on each side by cloth. These strips are, before the machine is started, held up clear of the wooden frame before mentioned, and at each stroke of the machine one strip is allowed to fall into the frame; at the same time, the latter is moved down slightly. The machine being started, the ends of all the wax-covered wicks are fed forward sufficiently to bring them on to the bottom bar of the frame. As soon as this is done, the lowermost of the strips falls into the frame, and lies on top of the ends that have been fed forward, at the same time holding them. A knife is then traversed across the machine, cutting all the wicks to the desired length. After this the frame falls sufficiently to allow the ends of the wicks to be again fed forward, another strip falls, and the operation is repeated. In this way the action is continued until the frame is full, with from 10,000 to 30,000 pieces, according to the size of the machine. The fourth side of the frame is then introduced, and the whole assemblage is securely locked. To convert these blanks into matches, all that remains to be done is to dip their ends at one operation into the igniting composition.

The second machine exhibited by the same maker is for completing the well-known sliding boxes in which the matches are sold. It is somewhat on the type of an envelope-making machine. The blanks of the boxes or cases, whichever may be in course of manufacture, cut to form and decorated, are placed in a trough, one end of which is fitted with a spring that presses the row of blanks against a gumming device that forms the other end of the box. The operation of drawing the blanks successively from the trough deposits the gum on the exact places required. The attendant then inserts the blanks one after another into a former, which doubles them to the required shape, and delivers them as finished cases or boxes, as may be. But if, after being thus finished, they were discharged from the machine, the gum would be still wet and would not hold. This difficulty is got over by the use of a large and broad wheel placed in front of the machine. Around the periphery of this wheel and parallel with its axis are formed a large number of grooves the width and depth of the boxes. The width of the wheel is equal to the length of four or five boxes, and light strips of brass are placed around the circumference at intervals. As soon as the completed box is delivered from the former, instead of falling to the ground, it is forced into one of the grooves in the wheel, the motion being so regulated as to bring a groove opposite the mouth of the former each time a box is delivered. But the action of forcing one box into one side of the groove displaces another on the opposite side. The wheel is then moved forward; another box is completed by the time the next groove is presented, and so on. By this arrangement, each box remains in its groove until the wheel, which travels slowly, has made several revolutions, and thus sufficient time for the gum to dry elapses before the turn of any box comes to be ejected. —*Scient. Am.*

Durable Ergotin Solution.

ACCORDING to Bonjean, a very durable solution of ergotin, suitable for hypodermic use, may be obtained by dissolving 1 part of his ergotin in 7 parts of cherry-laurel water (Pharm. Fr., containing 1 part of hydrocyanic acid in 2,000 parts) at as low a temperature as possible, allowing it to stand five days, and filtering without shaking up the sediment. The filtrate is to be digested during twenty-four hours with a quantity of animal charcoal equal to that of the original ergotin, and then again filtered. The resulting liquid has an amber color, and corresponds to about an equal weight of ergot.—*L'Union Pharm.*

IMPROVED VOLUMETRIC APPARATUS.

IN factories where the constant use of volumetric processes necessitates both rapidity of work and accuracy of execution, many improvements tending in either direction have gradually been developed, though they have not all been made commonly known. In beet-root sugar factories, for instance,

Fig. 1.

it is absolutely necessary, for an economical adjustment of the proper amount of animal charcoal, to know the exact proportion of alkalinity in the juice, and this must be ascertained by common workmen. They are furnished, for this purpose, with volumetric apparatus, in the use of which they become expert, though they may not perhaps understand the rationale. An improved apparatus of this kind, made by L. Hartmann & Sons, and presenting features of general interest, is here described.

Figs. 1 and 2 represent the front and rear, respectively. In Fig. 1, the burette at the left is a Licht's patent burette, having two lateral tubes fused upon it, one opposite the O point, and the other near the end. The latter is connected by pure rubber tubing with the reservoir of dilute acid standing on the shelf above. The other lateral tube is intended to carry off every drop of liquid over and above the zero point, into a receptacle placed behind the stand (see Fig. 2). When the operator comes along to perform his test, he places his capsule or beaker containing the liquid under the burette to the right, and allows a certain quantity of the indicator to drop into it (in the case of beet sugar, a solution of corallin is used). He then presses the pinch-cock in the rubber tube descending from the stock bottle, until enough test acid has run into the burette to fill it completely up to the zero mark (in doing so, he need not be very anxious and slow, as any excess will run into the bottle in the rear), after which he will permit the test-acid to run into his beaker, until the proper point of saturation is reached.

Another apparatus of this kind, specially intended for laboratories, is shown in Fig. 3. Here the stock-bottle itself is made the waste-bottle into which the excess of acid returns. A Woulffe's bottle with two necks is used as stock-bottle. On one neck a rubber bulb is fastened. If this is compressed, the liquid is driven up the burette to the zero overflow, where the excess runs back into the flask. — After *Chemiker Zeit.*

Fig. 3.

Purified Chinoidine.

THE last method given by Dr. De Vrij for obtaining pure chinoidine, in the Rotterdam Formulary (see NEW REM., 1882, p. 11), and which aimed to effect its object by means of benzol, has this disadvantage, that the odor of the solvent is quite persistent, and besides, the benzol dissolves not only the ordinary impurities, but also considerable quantities of an alkaloid which is lævogyrate under the polariscope, and often perfectly pure, insoluble in benzol.

The following process is not only economical, but furnishes a product purer than that demanded by the Pharmacopœia.

One hundred parts of chinoidine are boiled during five or ten minutes with a diluted solution of soda, under constant stirring. (The object of this is to dissolve, at least in part, a compound of amorphous alkaloid and kinic acid existing in the crude chinoidine, and also an unknown substance, which is but slightly soluble in soda. The brownish color of the alkaline solution, which becomes quite clouded by supersaturation with an acid, is a proof that this object is accomplished. The consequence of this treatment is that the chinoidine becomes soluble to thinner liquid when warmed with water, and thus becomes more readily soluble in the least possible quantity of soda solution.) When cold, the brownish alkaline liquid is poured off, and the remaining chinoidine washed with a little water. 300 parts of water are now added to the washed chinoidine, the whole heated to boiling, and then mixed very slowly with the least necessary quantity of nitric acid,* to obtain a homogeneous, dark-colored solution. The addition of a quantity of nitric acid, *only just sufficient*, is the principal point of the whole treatment. Until the proper experience has been acquired in this, it is advisable rather to leave a few grammes of chinoidine undissolved than to use *one* drop of acid too much. As soon, then, as the homogeneous, strongly alkaline solution has been obtained, it is poured into a tall glass, in which it is allowed to stand during one night. The liquid will separate into two portions,* of which the upper remains thin liquid, and has a light reddish-yellow color, while the lower, main portion is more viscid, and has a dark brownish-red color. The upper layer is poured off as clear as possible into a tall beaker, and water added to the remaining lower layer, with thorough stirring. After a few minutes' rest, the upper layer is then poured off again and added to the former. This operation is repeated until the lower layer ceases to yield anything to water, and is converted into a brownish-black mass insoluble in water, which is thrown away.

The united liquids thus poured off are turbid. A small quantity of it is now filtered, in order to ascertain whether the clear filtrate will become turbid when mixed with water. If this is the case, still more water must be added to the united liquids until they are no longer rendered turbid by it. After allowing the mixture to stand

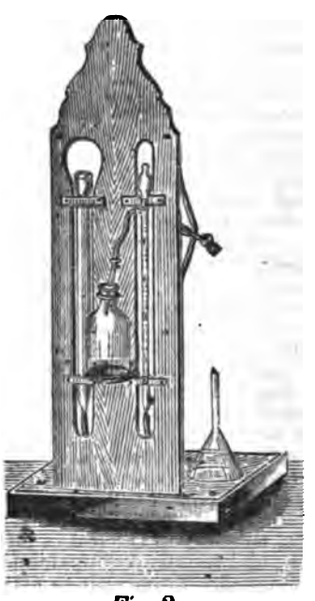


Fig. 2.

one night, it is filtered, and the filtrate mixed, in a porcelain capsule, with an excess of soda, which causes the separation of the purified chinoidine. When the alkaline liquid has become clear by settling, it is poured off, and the chinoidine washed with water until the washings cease to affect turmeric paper. The capsule is then warmed for some time on the water-bath, with occasional agitation of the contents.

At first, the melted chinoidine is thin liquid; but, when it loses it water, it becomes thicker, and towards the end becomes like thick honey. When this is the case, and it has been shown that a small sample, when removed and cooled, becomes hard and brittle, the warm mass is removed from the capsule as much as possible; while the residue may be readily removed when cold.

During the heating on the water-bath, an aromatic odor is perceptible. The loss incurred during this process amounted, in the case of Zimmer's chinoidine (the best in the market), to 14 per cent.

Chinoidine thus purified has a dark yellowish-red color, is transparent in thin slices, hard, and brittle. It is easily reduced to a light-yellowish-gray powder, and in this form it merits the attention of physicians. When warmed with water or dilute solution of soda, upon the water-bath, these liquids ac-

* The direction to use nitric and no other acid for this purpose, is due to the fact observed, that seemingly pure cinchona alkaloids, soluble in dilute hydrochloric acid as well as in alcohol, when treated with dilute nitric acid left some undissolved matter behind, which was not an alkaloid, and which appeared to be an impurity.

* If the liquid does not separate into two layers it is a proof that it is not alkaline enough, in consequence of the use of too much nitric acid.

quire at most a faint light yellowish tint. It is easily soluble in acids, and it is possible to prepare solutions of an alkaline reaction which, when highly concentrated, should not be rendered turbid by adding much water. Ether dissolves 80 per cent of it.

Chinoidine contains *at least* two amorphous alkaloids, of which that which constitutes the main portion is dextrogyrate, and soluble in ether. The other alkaloid is lævogyrate, and less soluble in ether. Hence a considerable quantity of ether is necessary to dissolve the soluble alkaloid. The combinations with acids all color red litmus blue and are strongly hygroscopic, with the exception of the borate. When these compounds are well dried they retain their pulverulent form even when heated on a water-bath. The hydrochlorate of purified chinoidine which has been put on the market for some years past by Zimmer, under the name "Chininum amorphum muriaticum purum," has been much used in medical practice.—DR. J. E. DE VRIJ, abstract from *Nieuw Tijdschrift voor der Phamacie*, 1884, 132.

BIBLIOGRAPHY.

GRUNDZUEGE DER ORGANISCHEN CHEMIE. Von DR. AUG. LAUBENHEIMER. 8vo. Heidelberg (Carl Winter's Universitätsbuchhandlung). Pp. x., 876, 1884.

WHEN we purchased, in 1882, the first part of the above work for our own use, we became at once so convinced of its high value that, in quoting the title of the work in NEW REMEDIES (1882, p. 54), we remarked: "This work is, in our judgment, the best treatise on organic chemistry in existence. It is specially written for use in Prof. L.'s lectures. Under each class of bodies the general methods by which they can be formed are described in detail and explained by formulæ."

Now that the work is completed, our previous (unsolicited) opinion is fully borne out by a careful inspection of the volume. The treatise, though written for the author's lectures, is so generally acceptable and so free from individual speculations that it will readily be adopted and followed by any teacher or learner.

The chief value of the work lies undoubtedly in the prominence which is given to the detailed discussion of general methods of preparing different classes of compounds, converting them into others by substitution or addition, and comparing them with each other, in order to elucidate their constitution, and showing their relationship to each other. Indeed, there is no textbook known to us which presents the immense number of facts in this department of chemistry so perspicuously and so logically arranged. While fully acknowledging the great value of many other text-books of organic chemistry, prepared on a different plan, we are quite convinced that Prof. Laubenheimer's work is that from which the professional student of organic chemistry will derive the greatest advantage. It is greatly to be desired that the work should be translated into English.

A SHORT TEXT-BOOK OF INORGANIC CHEMISTRY. By Dr. HERMANN KOLBE, Prof. of Chemistry in the University of Leipzig. Translated and edited by T. S. Humpidge, Ph.D., etc., Prof. of Chem. and Phys. in the University College of Wales, Aberystwyth. (With table of spectra and numerous wood engravings). 8vo. New York, pp. xvi. and 606. (John Wiley & Sons, 15 Astor Place), 1884.

PROF. KOLBE is, at present, the chief representative of the so-called conservative school of organic chemistry, being chiefly opposed to the modern speculations and theories of the "structural chemists," who in his opinion have lost the faculty of logically reasoning and can explain their ideas only by chemical formulæ. In the present treatise he has no occasion to allude to this subject, yet the prominent position which he holds, and the aggressive tendency of his literary warfare should attract attention to whatever emanates from his pen.

In the preface, the author presents some remarks which we deem of general importance and therefore copy here:

"A necessary condition for using a text-book of chemistry successfully, is *attentive* and *continuous* attendance at the lectures. Students in arts who have not regularly attended a course of lectures may be able to read up afterwards what they have missed; *but a lecture on chemistry*, which has not been attended by a student, *cannot be made up by mere reading*, neither the notes of the lecture by other students which ought to be extremely few, nor a text-book can serve as a substitute for what has not been heard. The chemist has to learn, not by reading nor by hearing alone, but both by hearing and seeing. A person who has not seen the phenomena produced by the union of oxygen and hydrogen, for example, can have no clear conception of them, nor of the chemical change which accompanies them. Nothing is more foolish than the opinion which I have often heard from young *medical students* that chemistry can be studied from books alone, like other subjects, that facts which are learned by heart can take the place of general principles only partially understood."

The chief aim of the author has been to give to his hearers and readers a clear idea of chemical processes and the most important chemical theories without burdening them with a large number of dry facts. On the other hand, no really important fact is omitted. In adapting the original to the English student, the translator made certain alterations and additions, which were calculated to increase the usefulness of the book. He also added an Appendix on Atomic and Molecular Weights, which is chiefly based on Lothar Meyer's "Moderne Chemie."

CORRESPONDENCE.

Large Doses of Morphine.

Editor American Druggist:

In your June number, page 111, I see that Dr. Livingston S. Hinckley believes the woman addicted to 85 grains morphine daily to be the "champion morphine-eater" of our country. I can give satisfactory proof that several of the habitués to opiates, by me cured, were addicted to still larger quantities. I myself saw a farmer from southern Illinois, aged sixty-two, take *at one dose*, a ½-ounce vial of morphia, claiming that he repeated the dose once or twice in every twenty-four hours. Wr. Wm. M——, passenger agent of a large R. R. co., took from 2½ to 3 drachms morphine daily, averaging 150 grains in every twenty-four hours. I am now treating a physician who uses 45 grs. morphine *hypodermically* daily, equal to about 120 grs. per os.

These cases I can vouch for, as I *saw* them take these amounts. In closing, allow me to add that my experience with every one of these, except the hypodermically addicted one, proved me that the quantity over 10 grs. at a dose *is lost*, for even the passenger agent above referred to, when experimented upon by me, to settle whether *all* or *only a part* of the morphine took effect, could not detect whether he was given 10 or 40 grs. *at a dose*. I should like to hear from others on this point.

Yours respectfully,
DR. J. C. HOFFMAN.

JEFFERSON, WIS.,
June 4th, 1884.

Foreign Medicines License in Great Britain.

The Editor American Druggist:

DEAR SIR:—Thinking that you may have complaints from some of the wholesale chemists in America at the whole of the imported medicines being classed as patent medicines, I have requested the solicitor in the patent medicine department at Somerset House to furnish me with specimen sheets of what every licensee has in England to subscribe to. As I only knew of this license last week for the first time, and having to take one owing to shipping patent medicines, it is not at all improbable that many of your readers in America were as ignorant of this part of the law on patent medicines as myself. I am, yours faithfully,

TH. CHRISTY.

155 FENCHURCH ST.,
London, E. C., June 10th, 1884.

STAMPED MEDICINES LICENSE.

44 George III., c. 98; 38 Vict., c. 23, s. 8.

I, the undersigned, duly authorized by the Commissioners of Inland Revenue, hereby grant license to.....of.....in the Parish of.....in the County of.....to utter, vend, or expose to sale, and keep ready for sale, any Medicines or Medicinal Preparations or Compositions chargeable with Stamp Duty, having stamped labels properly and sufficiently fastened or affixed thereto as the law requires from the day of the date hereof, until and including the First day of *September* next ensuing, he having paid the sum of FIVE SHILLINGS for this License.

Dated this.....day of.....188..

.....

Collector of Inland Revenue.

The provisions of the law relating to the license and stamp duty in respect of Medicines are contained in the following Acts of Parliament, 42 Geo. 3, cap. 56; 43 Geo. 3, cap. 73; 44 Geo. 3, cap. 98; 52 Geo. 3, cap. 150; 55 Geo. 3, cap. 184; s. 54; 3 & 4 Will., 4 cap. 97 s. 20; 38 Vict., cap. 23 s. 8.

Notice is hereby given that—

The stamp duty upon medicines is chargeable as follows:

For and upon every packet, box, bottle, pot, phial, or other inclosure containing any medicine charged with stamp duty,

	£	s.	d.
Not exceeding the price or value of 1*s*.....	0	0	1½
Exceeding 1*s*. and not exceeding 2*s*. 6*d*.....	0	0	3
Exceeding 2*s*. 6*d*. and not exceeding 4*s*.....	0	0	6
Exceeding 4*s*. and not exceeding 10*s*.....	0	1	0
Exceeding 10*s*. and not exceeding 20*s*.....	0	2	0
Exceeding 20*s*. and not exceeding 30*s*.....	0	3	0
Exceeding 30*s*. and not exceeding 50*s*.....	0	10	0
Exceeding 50*s*.....	1	0	0

The medicines charged with stamp duty are as follows:

The various articles specified by name in the schedule to the Act 52 Geo. III. c. 150, which includes:—

"Foreign medicines of all kinds except Drugs."

And also all other pills, powders, lozenges, tinctures, potions, cordials, electuaries, plasters, ungents, salves, ointments, drops, lotions, oils, spirits, medicated herbs and waters, chemical and officinal preparations whatsoever, to be used or applied, externally or internally, as medicines or medicaments, for the prevention, cure, or relief of any disorder or complaint incident to or

in any wise affecting the human body, made, prepared, uttered, vended or exposed to sale, by any person or persons whatsoever, wherein the person making, preparing, uttering, vending, or exposing to sale the same, hath or or claims to have any occult secret or art for making or preparing the same: or hath or claims to have any exclusive right or title to the making or preparing the same: or which have at any time been, now are, or shall hereafter be prepared, uttered, vended, or exposed to sale under the authority of any Letters Patent under the Great Seal: or which have at any time heretofore been, now are, or shall hereafter be, by any public notice or advertisement, or by any written or printed papers or handbills, or by any label or words written or printed, affixed to or delivered with any packet, box, bottle, phial, or other inclosure containing the same, held out or recommended to the public by the makers, vendors, or proprietors thereof as nostrums, or proprietary medicines, or as specifics, or as beneficial to the prevention, cure or relief of any distemper, malady, ailment, disorder or complaint, incident to or in any wise affecting the human body.

Upon the outside of all packages containing one dozen or more inclosures, containing any medicine charged with stamp duty sent to any retail vendor by any public conveyance, or which shall be about to be exported, the word "*Medicines*" must be written, and also the name of the person sending or exporting the same; and it is lawful for any officer of customs or excise, by authority in writing of any justice of the peace, to be granted upon information upon oath that there is reason to suspect that any such package contains medicines charged with stamp duty and not properly labelled, to open the same, and if the medicines therein contained shall be found not to have proper stamped labels affixed thereto, to seize the same and deliver them to the commissioners of inland revenue.

Any person uttering, vending, or exposing to sale, or keeping ready for sale any medicine charged with stamp duty without having a license incurs for every offence a penalty of £20.

Any person uttering, vending, or exposing to sale, or offering or keeping ready for sale, either wholesale or retail, either for foreign or home consumption or otherwise, or buying or receiving, or keeping for the purpose of selling by retail, either on his own account or on the account of any other person, any inclosure containing any medicine charged with stamp duty, without a stamp label being properly and sufficiently stuck or fastened thereto, so that the inclosure cannot be opened and the contents poured out or taken therefrom without tearing such label, so as to prevent its being made use of again, incurs for every offence a penalty of £10.

Any person fraudulently taking off any stamped label from any such inclosure, after the same shall have been sold or disposed of, or fraudulently affixing to any such inclosure any label which has been made use of, or uttering, vending, or exposing to sale any such inclosure with any such label so fraudulently taken off affixed thereto, incurs for every offence a penalty of £20.

Any person selling or buying any stamped label which has been once made use of, in order to its being used again, or selling any inclosure with a label which has been before made use of, incurs for every offence a penalty of £20.

Any person who shall receive from any proprietor, compounder, or first vendor any medicine charged with stamp duty for the purpose of selling the same again, without stamped labels being affixed thereto, and not returning the same or giving information thereof to the commissioners of inland revenue, and depositing such medicine with them or the nearest distributor of stamps, incurs for every offence a penalty of £20.

Monstrosity.

Editor of American Druggist:

One of the strange things one finds in this land of ignorance. A few weeks ago, at a village some thirty miles from here, a perfectly formed child was born, except that it had *two* heads instead of one, side by side, well developed. The midwife (?) and the parties most interested in the child considered two heads a superfluity, inasmuch as they see most people around with only one, and a good many with only a symbol of a head; what was to be done in this case? They saw no way out of the dilemma but through the knife—and such a knife! So the operation of decapitation of the superfluous head was proceeded with by the village surgeon, whose usual occupation, by the way, is that of a sheep surgeon! Any way, the extra head was removed, leaving the child as man was originally planned by the Almighty. But to their horror, if they had any—which I question—they had opened the life-streams, which they were entirely incapable of closing or managing. The rest needs no comment. It is certain that family circle was not enlarged by the coming of the youth.

Another strange freak of nature in the same village, only a few weeks previous to the above incident, was the birth of a child perfect in all respects, except the head, of which there was *none*, development having ceased with termination of the spinal column!

MARDIN, TURKEY-IN-ASIA, April 3d, 1884. D. M. B. THOM, M.D.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,302.—**Pancreatized Injection for Rectal Alimentation** (W. R. S.).

Physiological investigation has shown that the function of the pancreas during digestion is at least threefold, depending upon the presence of three distinct ferments, or, according to others, upon the presence of a single substance ("zymogen") which, under certain conditions, acts as a ferment. One of these ferments converts starch into glucose; another digests albuminoids in alkaline solution, that is, it peptonizes them; and the third decomposes fats into fatty acids and glycerin.

Leube made the observation that a concentrated solution of pepsin peptones is only with difficulty retained by the rectum; while a pancreas-peptone was not affected with this drawback. He eventually devised the following process:

Reduce a sufficient quantity of beef to a very finely divided mass, first by scraping and then by chopping. Of this mass, 150 to 300 grammes (5½ to 10½ oz.), are taken for one injection, and the same intimately mixed with 50 to 100 Gm. (1¾ to 3½ oz.) of fresh finely chopped pancreas, freed from fat as much as possible. The mixture is stirred with a pestle or spoon, under addition of a little *lukewarm* water (up to 150 C.c. or about five fluidounces), so as to form a thick magma. The addition of water is indispensable, since the mixture would otherwise refuse to pass through the orifice of the syringe. If it is desired to combine with the peptonization of fibrin a digestion of fat, a quantity of the latter amounting to about one-sixth of that of the beef may be intimately mixed with the above to an emulsion.

When injected into the rectum, this emulsion is free from all irritating effects and is not followed by any loosening effects upon the bowels.

No. 1,303.—**Crotonchloral** (Manufacturer).

Crotonchloral, or as it is more correctly termed, butylchloral, is prepared in a manner similar to the ordinary chloral (ethyl-chloral), namely by passing a continuous stream of chlorine gas through the liquid serving as starting-point.

In the case of ethyl-chloral (the officinal chloral), alcohol is treated with chlorine while in the case of butylchloral, aldehyde is used.

Aldehyde is prepared in the following manner.

Upon 3 parts of coarsely powdered bichromate of potassium contained in a large flask provided with a reflux-condenser, are poured a cold mixture of 3 parts of alcohol, 12 parts of water, and 4 parts of concentrated sulphuric acid. Very soon the mixture becomes hot, and then boils violently. The upright condenser is fed with water between 40° and 50° C. (104 to 122° F.), in order to cause the condensation and return to the flask of the vapors of alcohol and of water, while the vapor of aldehyde passes onwards, and is conducted in a second condenser, cooled with ice-water, and provided with a series of receivers, all of which are properly cooled with ice and salt.

When the first violent reaction in the flask moderates, it may be started again by the application of a gentle heat.

The collected aldehyde is not sufficiently pure, and is first converted into aldehyde-ammonia. This is done by mixing the crude aldehyde with two volumes of pure ether, and saturating the solution, in the *cold*, with dry ammonia. After setting aside a few days, crystals of aldehyde-ammonia separate. These are washed with a little ether, dried, then cautiously mixed with diluted sulphuric acid (avoiding rise of temperature), and distilled in the water-bath, when pure aldehyde passes over.

Instead of using this aldehyde direct for the preparation of butylchloral, it is of advantage to first convert it into paraldehyde which may be done in a very simple manner by a so-called catalytic reaction. The aldehyde, namely, is treated at the ordinary temperature with one or a few drops of concentrated sulphuric acid or with a little chloride of zinc or hydrochloric acid, when it becomes warm, shrinks in volume, and is nearly all converted into paraldehhde, which may be separated by fractional distillation.

Aldehyde has a spec. grav. of 0.801 at 0° C., paraldehyde 0.998 at 15° C. The former boils at 21° C. (70° F.), the latter at 124° C. (255.2° F.).

Aldehyde has the composition C_2H_4O; paraldehyde has three times the molecular value of the latter, namely, $(C_2H_4O)_3$.

Now *butylchloral* is prepared by passing a slow stream of dry chlorine gas through aldehyde, or, better, paraldehyde, as long as the gas is absorbed. At first the liquid must be carefully cooled, but towards the end of the reaction it requires warming and even

heating to 100° C. (212° F.). The crude chloral is purified by agitating with concentrated sulphuric acid, and either distilling off the oily layer which separates, or, if nothing separates, distilling the mixture.

Butylchloral is a colorless, oily liquid, having an odor resembling that of chloral, and boiling at 163° to 165° C.

With water it unites to form a crystalline hydrate, $C_4H_5Cl_3O.H_2O$, and this is the substance employed in medicine under the name of *croton* or *butyl-chloral*.

The name croton-chloral arose from an erroneous conception of its chemical composition, when it was first discovered. It was supposed to be related to the aldehyde of crotonic acid (C_4H_6O), in which three at. of hydrogen were supposed to be replaced by three at. of chlorine, so that it would appear to be trichlor-crotonic aldehyde: $C_4H_3Cl_3O$. Later, however, it was shown that it contained two more atoms of hydrogen: $C_4H_5Cl_3O$, which shows that it is related to the aldehyde of butyric acid: C_4H_8O. Hence it should be called: trichlorbutylaldehyde or *butyl-chloral*.

No. 1,304.—**Determination of Tartaric Acid in Crude Tartar** (Importer).

The following method is given by Hager:

Dissolve the tartar in cold 10-per-cent hydrochloric acid and filter. If the tartar contains sulphate of calcium, the latter dissolves likewise, and it is then necessary to remove the sulphuric acid by means of barium chloride and filtering off the precipitated barium sulphate. One-half of the filtrate is then neutralized with caustic soda, and the other with carbonate of sodium, at a boiling temperature (in order to remove any ammonia present), and the hot liquid mixed with an excess of chloride of calcium. The separated tartrate of calcium is allowed to settle during twenty-four hours in a cold place, the supernatant liquid then decanted, the residue washed with a small quantity of water, and then with 60% alcohol. It is then dried first at 50° C., then at 110° C., and weighed. The weight multiplied by 0.8 yields the quantity of crystallized tartaric acid. The dry precipitate is then ignited and converted into caustic lime (CaO). The weight of the latter multiplied with 2.68 likewise indicates the weight of the crystallized tartaric acid present in the sample.

No. 1,305.—**Theriac** (Medicus).

It is, indeed, true that the new French Codex has perpetuated the antiquated and incongruous mixture—a true specimen of senseless polypharmacy—known under the name of "Electuaire Thériacal or Theriac." It used to contain 60 ingredients. The Committee of Revision has omitted four of these, namely Valeriania celtica, Schœnanthus arabicus, Sagapenum, and Vipera, and has replaced the Malaga wine by "Vin de Grenache," so that the present number of ingredients amounts to 56. Fifty-two of these (nearly all of vegetable origin, excepting Castor, Terra sigillata and dried sulphate of iron; we might perhaps also add Asphalt) are to be powdered together, and the powder passed through a No. 100 sieve so that as little residue as possible shall remain. This powder is designated as Theriacal Powder (poudre thériacale). The final steps of the process are as follows:

Theriacal powder	1,000 Gm.
Chian turpentine	50 "
White honey	3,500 "
Grenache wine	250 "

Into a capsule put the Chian turpentine, melt it with a gentle heat, and add to it enough theriacal powder, in order to divide [or absorb] the turpentine completely. On the other hand, melt the honey, and pour it, while warm, very gradually into the capsule containing the other mixture. Then gradually add the remainder of the powder and the wine, which should impart to the mass the consistence of a slightly soft paste. When the whole is perfectly mixed, preserve the electuary in a pot. After a few months, replace the theriac in a mortar, and triturate it again in order to render the mass perfectly homogeneous.

Four Gm. of theriac contain about 0.05 Gm. [or 1¼ per cent] of crude opium, equivalent to 0.025 gm. of extract of opium.

No. 1,306.—**Sulphate of Quinine (Codex)** (Medicus).

The full text of the Assay of *Sulphate de Quinine Basique* of the new French Codex is as follows:

Commercial sulphate of quinine is sometimes mixed with foreign substances the presence of which may be recognized by the modifications which they produce in the following characteristics belonging to the pure salt.

1. When completely dried at 100° C. [212° F.], 1 gm. of officinal sulphate of quinine must leave a residue weighing not less than 0.85 gm.* (excess of water).

2. Officinal sulphate of quinine is combustible without residue (absence of fixed mineral substances). It is not sensibly colored in contact with pure concentrated sulphuric acid (absence of foreign substances, sugars and glucosides), and is completely soluble in this acid (absence of fatty substances and starch), as well as in a mixture of five volumes of 95% alcohol and ten volumes of chloroform (absence of mineral substances). Its aqueous solution does not precipitate nitrate of silver (absence of chlorides); when heated with an excess of dilute soda solution, it does not evolve ammoniacal vapors rendering red litmus paper blue.

3. Officinal sulphate of quinine should contain no other cinchona alkaloids. In this respect, it must comply with the following test, which detects at the same time the presence of any other more soluble substance:

Mix 2 Gm. of the sulphate of quinine in a stoppered test tube with 20 cubic centimeters of distilled water, and agitate briskly, so as to keep the salt in suspension in the liquid. Allow them to remain in contact for half an hour, plunging the tube into warm water, and agitating occasionally. Then allow to cool completely in the air, and afterwards in a water-bath kept at the temperature of 15° C. (59° F.), in which the test tube is to be kept for half an hour, being frequently shaken. Finally transfer the contents of the tube upon a small Berzelius filter, and subject the filtrate to the two following operations:

a. Remove 5 C.c. of the clear liquid with a graduated pipette, introduce them into a test tube, and add 7 C.c. of water of ammonia of the specific gravity 0.960 in such a manner that the liquids become mixed as little as possible; close the tube, and invert it gently. There should result immediately, or in a very short time, a clear mixture, which should remain clear even after twenty-four hours. If a turbidity remains, or if crystals are deposited in the liquid after it has become clear, an undue proportion of other alkaloids than quinine is present.

Note.—It is true that *pure* sulphate of quinine which is highly effloresced may be found impure when subjected to this test. But such a salt, of a high percentage of real alkaloid, has no longer the composition of the officinal salt. It is necessary, when testing such a salt, to take into consideration the amount of escaped water.

b. Take another portion of 5 C.c. of the clear liquid saturated at 15° C., pour it into an exactly tared, small capsule, and heat it in a drying-oven at 100° C. until it ceases to lose weight. The residue should not weigh more than 0.015 Gm. (15 milligrammes).

* The U. S. Ph. allows 0.838 gm., permitting the presence of eight molecules of water.—Ed. A. D.

No. 1,307.—**Gelatin Pill Coating** (B——.).

What coating is the *best* we are unable to say, but in previous numbers of this journal you will find several mentioned. For example, on page 199 of New Remedies for 1883 is the one given by Mr. Luther F. Stevens, of Brooklyn, to wit:

Gelatin (Cox's or Gold Seal)	gr. 200
Cold water	gr. 200

Let it stand until the water is absorbed, and add:

Hot water	gr. 640
Mucilage (U. S. P.)	gr. 300
Syrup	gr. 400
Glycerin	gr. 60

Dissolve, heat, and strain.

This makes about four fluid ounces, and is of convenient density. When cooled, it forms a jelly-like mass which will keep for two weeks in winter in an ordinary store-room; can be handled and cut from when wanted for use. When working steadily along, a few drops of water need to be added from time to time, or it becomes too thick. If it be kept on hand, one grain of salicylic acid will act as a sufficient preservative.

No. 1,308.—**Ointment for Hoofs of Horses and Cattle** (Apprentice).

The writer asks for a formula for an ointment for cuts, scratches, cracks, etc., on the hoofs of horses and cattle.

Strictly speaking, the "*scratches*," so-called, does not affect the hoof, but the ankle adjoining it, and is caused by exposure to wet and cold, and is therefore most common in the cold season of the year. In any case, an effort should be made to keep the part dry, and when washing is done, use warm water with Castile soap, and dry *thoroughly*. If the skin is not broken, apply lard or petrolatum, and dust with powdered alum twice daily. If the skin is cracked, apply

Carbonate of zinc	ʒ i.
Lard	℥ vi.

If the sores are indolent, touch their edges with a solution of an ounce of sulphate of copper in a half-pint of water.

No. 1,309.—**Pure Hydrosulphuric Acid** (Ultra).

As a safe basis to start from, it has been repeatedly recommended to begin with a sulphide which is, by its very nature, unlikely to be contaminated with metallic or other impurities, likely to render the gas impure. Probably the best for this purpose is sulphide of barium or sulphide of calcium, best in large lumps. These salts are readily prepared from the corresponding sulphates by heating with charcoal and exclusion of air. For decomposing these sulphides, *pure* hydrochloric acid is best used.

No. 1,310.—**Kairine** (to Query 1,286).

By slow crystallization from water, kairine may be obtained in colorless, shining, rhombic prisms. It is easily soluble in water, but difficultly so in hydrochloric acid. Its behavior towards bichromate of potassium is quite characteristic. A dilute aqueous solution of kairine, when treated with solution of bichromate of potassium, at first yields a dark color; after a few seconds, however, a difficultly soluble, very dark violet coloring matter separates, which dissolves in alcohol with a color resembling that of mauveine. When the aqueous solution of kairine is boiled with ferricyanide of potassium, a dark greenish-yellow coloration results.

No. 1,311.—**New York and Brooklyn Formulary** (B——).

This may be had at the New York College of Pharmacy. See previous numbers of this journal.

No. 1,312.—Parasitic Bronchitis in Calves (C. C. W., Half Moon Bay, Cal.).

DEAR SIR:—I have a customer, a cattle-raiser, who leased a ranch last year, which, unknown to him, was infected with a disease somewhat like an epizootic. It attacks cattle and has been very fatal among the calves. It comes on with a cough, and the calf froths at the mouth and finally seems to smother. He has opened one or two after death, and found the same froth extending into the lungs. He also found the bronchial tubes and air passages literally filled with long thread-like worms, or animalculæ. He has used different disinfectants and caused them to inhale sulphur fumes, but has derived little if any benefit.

Thinking that you or some of your many readers might know of some specific for the disease, I take this liberty, hoping to hear from you or see the case discussed in the AMERICAN DRUGGIST. C. C. W.

L. V. Teller, M.D., in his excellent work on Diseases of Live Stock, published in Philadelphia, by D. G. Brinton, gives the following account of this disease.

The Husk or Hoose Parasitic Bronchitis is a disease caused by the irritation in the windpipe, bronchial tubes, and lungs, of a parasitic worm called the strongylus. The disease is very fatal to sheep in many parts of this country. The worms generally attack calves under one year old, and especially such as are pastured in low-lying lands near rivers, and subject to flood. They are mostly seen in the months of August and September. Sometimes they are very numerous, and are found after death congregated together in a ball in the windpipe, thus choking the animal to death.

The complaint is marked by a hoarse, bronchial cough, called the "husk" or "hoose," loss of flesh, difficulty of breathing, and suffocation, to a greater or less degree. Sometimes in the mucus coughed up the parasite may be detected. It is white in color, the body an inch or two long, and slender as a thread. Whenever in the autumn months calves are noticed to cough and gasp, they should be carefully examined for the signs of this worm.

Affected calves should be separated from the rest of the flock, so that none of the eggs of the worm convey the disease to the remainder. They should be placed in a dry stable, protected from dampness, and caused to inhale two or three times a day the fumes of burning sulphur. If this is done for fifteen or twenty minutes at a time, and continued for two or three days, the worms will generally be destroyed. The vapor of chloride of lime is also said to be destructive to them. Or, instead of inhalations, a small dose of turpentine, about half an ounce, may be given in gruel daily, for a few days. Or a teaspoonful mixed with double the quantity of sweet oil, may be poured into the nostrils. This is, however, liable to choke the patient if carelessly done. Two or three doses, at intervals of two or three days, will effect a cure. Or the turpentine may be given in the following tonic combinations:

Oil of turpentime	½ oz.
Carbonate of iron	2 drs.
Gum mixture	4 oz.

A tablespoonful to be given night and morning. Or:

Linseed oil	4 oz.
Oil of turpentine	1 oz.
Oil of caraway seed	20 drops.

Give half this dose, morning and night, to a calf six months old, and repeat in ten days.

Half a pint of lime water, every morning, will destroy the worms also; but a teaspoonful or two of turpentine with it adds to its efficacy.

[See also Report of the Department of Agriculture, 1877, p. 486 and following.]

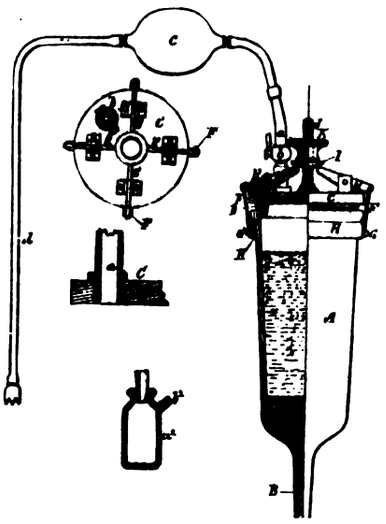
NEW PATENTS.

[Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.]

Condition Powder. 298,433.—Chas. White, Jr., and James Anderson, Versailles, Ind. Consists of pulverized fenugreek, nitrate of potassium, elecampane, sulphate of iron, gentian, and gum acacia.

Liniment. 298,706.—Sophia Potter, Clementsvale, N. S. Composed of spirit of camphor, decoction of the leaves of the pitcher plant (*Nepenthe distillatoria*), saltpetre, porpoise oil, turpentine, laudanum, and spirit of ammonia.

Capsule. 298,720. — Lawrence A. Anderson, Hamilton, Ohio.



299,198.

299,176.

Apparatus for Reducing Sulphur. 298,734.—Ferdinand Dickert, Salt Lake City, Utah.

Combined Liquid Measure and Register for Bottles. 298,778.—Ebenezer H. Rogers, Jr., New York, N. Y.

Inhaler. 298,802.—Charles Warren, Wellesley, assignor to John C. Warren, Boston, Mass.

Petroleum Still. 298,825.—Rollin C. Clark and Murray H. Warren, Corry, Pa.

Suppository for Catarrh. 298,855.—Frederick Herman Hubbard, Brooklyn, N. Y., assignor to himself and Henry M. Pierson, same place. Composed of iodoform, geranium, carbolic acid, gum, and a fatty vehicle.

Bottle Capper. Catherine May, Cleveland, Ohio, assignor to Walter L. Judd, Brooklyn, N. Y.

Corkscrew. 299,100.—Joshua Barnes, Brooklyn, N. Y.

Vacuum Pan. Lucas M. Campi, Havana, Cuba.

Process of Bleaching, Deodorizing, and Sweetening Benzin. 299,167.—John Rowsell, Chicago, Ill., assignor of one-half to Dr. Geylor & Bro., same place.

Funnel. 299,170.—Casper B. Shafer, Washington, D. C.

Claim.—An improved funnel provided with a vent groove or corrugation extending longitudinally upon the exterior side of the body and neck, said groove having its lower terminus above the lower extremity of the neck, and its upper terminus at or below the upper extremity of the body.

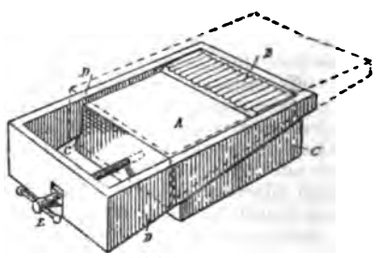
Capsule Cutter. 299,182.—William A. Tucker, N. Y.

Bottle-Washer. 298,185. — Adolph von Schade, Newport, R. I.

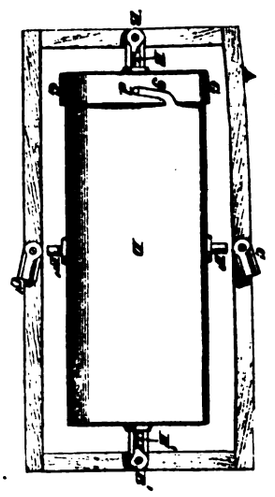
Percolator. 299,198.—Charles Kempton Bradford, Lynnfield, and John Gano Benedict, Boston, Mass.

Claim.—1. A drug-percolator consisting of vessel A, provided with detachable cover C, in combination with an air-forcing device attached to said cover, and clamping mechanism for holding said cover in place on said vessel substantially as set forth.

2. In a drug-percolator, the combination, with the vessel and its cover, of the levers E, mounted on said cover,



299,258.



299,209.

the screw-threaded rod and nut whereby the inner ends of said levers are acted on, and the links F, connecting the outer ends of said levers with said vessel, substantially as set forth.

Mixing Machine for Drugs and Chemicals. 299,209. — Adam Dickey, Cincinnati, Ohio.

Claim.—1. In combination with the revolving receptacle D, a series of blades, fixed to the interior of said receptacle, the blades of one rank being set in an opposite oblique manner with reference to the blades of the other rank.

2. In combination with the cylinder D, having two pairs of gudgeons E E′ and F F′, located as herein described, the frame A provided with two distinct sets of swinging journal-bearings, B B′ and C C′.

Portable Apparatus for Heating Mineral Water in Bottles or Flasks. 299,251. — Edwin D. Newton, New York, N. Y.

Pill-Making Device. 299,258. — Edward B. Patterson, Detroit, Mich.

Claim.—1. The bed of a pill-making

device, provided with inclined ways upon which guideways can be adjusted to varying heights with relation to such bed.

2. In combination with the bed of a pill-making device, provided with inclined ways upon its sides, the guide-bars herein described.

3. In combination with the bed and guideways of a pill-making device, means for adjusting said guideways with relation to the plane of the bed.

Laryngoscope. 299,277.—Henry B. Sheridan, Cleveland, Ohio.

ASSOCIATION AND COLLEGE NOTES.

Alabama.—At the third annual meeting of the State Pharmaceutical Association the following officers were elected: P. C. Candidus, Mobile, *President;* J. B. Collier, Opelikand; E. P. Galt, Selma, *Vice-presidents;* M. M. Stone, *Secretary.*

The next annual meeting will be held at Anniston, May 5th, 1885.

Arkansas.—The Arkansas Association of Pharmacists held its second annual meeting at Little Rock on April 29th, and the following officers were elected: *President*, J. B. Bond, Little Rock; *Vice-president*, J. R. McDaniel, Arkadelphia; *Secretary*, J. R. Colburn, Little Rock; *Treasurer*, E. P. Shear, Little Rock; *Executive Committee*, J. W. Beidelman, J. A. Jungkind, C. J. Lincoln.

Indiana.—The officers of the St. Joseph County Pharmaceutical Association are: C. G. Morris, *President*, and Leo Eliel, *Secretary.*

Iowa.—The druggists of Tamar County met at Gladbrook, May 19th, and organized under the name of the Tamar County Pharmaceutical Association. The following officers were elected: *President*, S. Steiger, Toledo; *Vice-President*, O. D. Bonney, Traer; *Secretary*, Dr. F. L. Hinsdale, Toledo; *Treasurer*, Dr. H. C. Hutson, Gladbrook. The object of the association is to further the sale of preparations on the Campion plan. The next meeting will be held at Toledo, Aug. 5th, 1884.

The Iowa Pharmacy Commission met at Des Moines May 22d, 23d and 24th. The following certificates were revoked: No. 2324, J. B. Holywell, of New Sharon, and No. 895, Frank M. Cattern, Mt. Ayr. The following officers were elected for the ensuing year: *President*, Geo. H. Schafer, Fort Madison; *Vice-President*, R. W. Crawford, Fort Dodge; *Secretary and Treasurer*, C. A. Weaver, Des Moines.

Of 41 applications for registration, 81 passed examination, and certificates were issued to Jacob L. Peutzer, Muscatine; Edwin W. Reagan, Nevinville; Jno. W. Camp, Council Bluffs; W. W. Hendershott, Rose Hill; Robt. R. Arnold, Humeston; Lafayette D. Wright, Knoxville; Louis C. Chapman, Creston; Chas. Patterson, Des Moines; Jonathan Smiley, Portsmouth; A. A. Hugg, Oskaloosa; H. J. R. Rose, Des Moines; John Stennets, Emmettsburgh; Geo. S. Mornin, Cedar Falls; Geo. H. Pyle, Malcom; J. L. Simcoke, Redfield; J. W. David, Alden; Wm. J. Stewart, Grimes; John S. McGrath, St. Anthony.

The Iowa State Pharmaceutical Association at its fifth annual meeting elected the following officers for the ensuing year: *President*, W. S. McBride, Marshalltown; *Vice-Presidents*, M. W. Ward, A. H. Miles, Des Moines; C. R. Wallace; *Permanent Secretary*, E. L. Boerner, Iowa City; *Treasurer*, C. H. Ward, Des Moines; *Local Secretary*, J. B. Atkins, Council Bluffs; *Executive Committee*, Alfred Hammer, W. C. Bryant, James A. Richmond; *Delegates to the National Retail Druggists' Association:* G. W. Bailey, Geo. H. Welch, Conrad Wangler, C. D. Boardman, and Ben Nott.

Delegates to the American Pharmaceutical Association: J. H. Harrison, I. P. Van Cise, R. W. Crawford, W. S. McBride, and A. H. Miles.

The next annual meeting will be held at Council Bluffs on the second Monday in June, 1885.

Kentucky.—The druggists of Louisville organized a Protective Association on May 7th, and appointed a committee of three to obtain signatures to the constitution. The executive committee was directed to present a plan at the next meeting which would enable members to obtain the full prices on proprietary articles.

The seventh annual meeting of the State Pharmaceutical Association was held at Louisville, on May 21st. Not more than thirty-five members were in attendance, and only two papers were read.

The following new members were elected: Messrs. Graham Wilder, F. V. Simms, E. S. Sutton, of Louisville; R. B. Stockton, Richmond; Howard Jett, Versailles; George B. Lyne, of Henderson.

The following officers were elected for the ensuing year. *President*, J. Oxley; *Vice-Presidents*, W. H. McDowell, Harry Megill, Wyley Rogers; *Recording Secretary*, J. F. Cooke, Harrodsburg; *Corresponding Secretary*, H. Evans, Danville; *Treasurer*, J. J. Brooks.

The next meeting will be held at Danville, May 18th, 1885.

Louisiana. — The second annual meeting of the State Pharmaceutical Association was opened at Baton Rouge, May 19th, by President J. T. Thibodaux.

The following new members were elected: F. E. Bailey and Jas. E. Estorge, of Opelousas; Richard H. Day, of Baton Rouge; S. C. Schwing, of Jackson; Marcus B. Tarlton, J. M. Dashy, and Joseph E. Frahan, of Vermillion; R. Batterbee, of St. Landry; Vic. Mary and H. W. Harper, of New Orleans.

The election of officers resulted as follows: Mr. A. R. M. Girling, of New Orleans, *President;* Alexander K. Finlay, *first Vice-President;* J. J. Mallon, *second Vice-President*, both of New Orleans; Ben Lewis, *Recording Secretary;* C. L. Keppler, *Corresponding Secretary;* J. B. Lavigne, *Treasurer* (re-elected).

Maryland.—The pharmacists, wholesale druggists, and manufacturing pharmacists of Maryland formed an organization on May 1st, under the name of the "Maryland Drug-Trade Association," with the object in view to co-operate with the National Association in the maintenance of full prices for proprietary medicines. At the second meeting, which was held May 19th, forty-one new members joined. The officers are: *President*, Dr. A. J. Corning; *Vice-Presidents*, W. Canby, W. S. Powell, C. V. Eurich; *Secretary*, W. L. Keller; *Treasurer*, A. C. Meyer.

The following were elected officers at the second annual meeting of the Maryland State Pharmaceutical Association: *President*, D. C. Auginbaugh, Hagerstown; *Vice-Presidents*, Steiner Schley, Frederick; N. J. Corning, Baltimore; Dr. L. D. Collier, Salisbury; *Secretary*, M. L. Byers, Hagerstown; *Treasurer*, E. W. Russell, Baltimore; *Executive Committee*, S. Mansfield and H. N. Elliott, of Baltimore, and J. B. Boyle, of Westminster.

Massachusetts.—The third annual meeting of the Massachusetts Pharmaceutical Association was held in Lowell, June 4th and 5th.

President S. A. D. Sheppard read his address, which embraced many subjects important to the pharmacists of the State. The Treasurer's report showed that the receipts for the year had been $1,016.67, and the expendi tures 827.24.

On Wednesday afternoon the visitors were taken up the Merrimac River to Tyng's Island, where they were entertained with a base ball match between two nines made up of local druggists and the representatives of the exhibitors. The officers elected for the ensuing year were: *President*, C. B. Emerson, of Haverhill; *Permanent Secretary*, J. W. Colcord; *Treasurer*, F. H. Butler; *Directors*, C. B. Emerson, J. W. Colcord, F. M. Pease, G. C. Brock, and J. J. Estes. *Executive Committee*, J. H. Hart, E. S. Anthony, C. A. West; *Committee on Papers and Queries*, W. W. Bartlet, Edwin Baker, E. B. Hamblin, G. E. Fairbanks, and F. T. Whiting; *Committee on Trade Interests*, Henry Canning, T. G. Tweed, E. G. Frothingham, Albert C. Smith, and C. P. Alden; *Committee on Legislation*, E. C. Marshall, J. W. Ferguson, H. A. Estabrook, Converse Ward, Arthur Hudson, C. F. Nixon, and W. H. Flynn.

The next meeting will be held in Pittsfield, the first Wednesday in June, 1885.

Minnesota.—The Southern Minnesota Retail Druggists' Association held a meeting at Rochester on the 20th of May, to complete its organization, Mr. F. A. Poole, of Rochester, acting as Chairman. The report of the Committee on Constitution and By-Laws was adopted unanimously and signed by those present, and the Secretary was authorized to solicit memberships and fees to the 20th of Jan. The following officers and Commmittees were chosen: *President*, F. A. Poole, Rochester; *Vice-Presidents*, S. L. Crocker, Faribault, L. G. Nelson, Kasson; *Secretary*, G. Hargesheimer, Rochester; *Treasurer*, J. Grinnell, Kasson; *Executive Committee*, L. G. Nelson, Kasson; George Weber, Rochester; Geo. H. Ely, Dodge Center; A. O. Heiberg, Rushford; A. Olson, Blooming Prairie; *Committee on Arbitration*, James Barnett, Oronoco; J. G. Bush, Dover; W. W. Jewell, Pine Island.

The President was allowed thirty days within which to appoint other committees. The Secretary was directed to have two hundred copies of the Constitution and By-Laws printed.

The following were adopted:

Resolved, That we disapprove of the action of Messrs. J. C. Ayer & Co., in placing the retail price of their hair vigor at 75 cents without making a corresponding reduction in their wholesale rates.

Resolved, That the practice resorted to by the proprietors of the article known as "Horsford's Acid Phosphate," in placing said preparation in the hands of grocers in places where retail drug stores are established, is contrary to the interests of the retail drug trade, and meets with our unqualified disapproval, and if persisted in, we will use all honorable means in our power to discourage the use and sale of said preparation and promote the sale of other similar preparations in its stead.

Resolved, That copies of the above resolutions be forwarded by the Secretary to the proprietors of said articles, also to the Secretary of the National R. D. Association.

Resolved, That the next annual meeting of this Association be held at Kasson, Minn., on the second Tuesday in May, 1885.

A meeting of the Executive Committee will be held at Rochester, on the third Tuesday in August, next.

A vote of thanks was extended to the Committee on Constitution and By-Laws.

On motion the Secretary was instructed to present a copy of the pro-

ceedings of this meeting to the AMERICAN DRUGGIST for publication.

Adjourned.

Mississippi.—At the Annual Meeting of the State Pharmaceutical Association the old officers were unanimously re-elected.

The following delegates and alternates were elected to the A. P. A. and the N. R. D. A.: *Delegates*—H. C. Buchanan, F. A. Ducks, S. A. Jackson, C. H. Clifton, S. S. Spencer. *Alternates*—E. C. Williamson, J. W. Eckford, B. S. Beal, Edgar Ditem, J. H. Athen.

Nebraska.—The Nebraska State Pharmaceutical Association met at the City of Omaha, May 14th. The following officers were elected for the ensuing year: *President*, N. A. Kuhn, Omaha; *Vice-Presidents*, J. Z. Cross, De Witt; Henry Cook, Red Cloud; Jas. Reed, Nebraska City; *Secretary*, H. H. Whittlesey, Crete; *Asst. Secretary*, J. Forsyth, Omaha; *Treasurer*, C. M. Leighton, Lincoln. The next meeting will be held at Omaha, the second Wednesday in May, 1885.

New Jersey.—The fourteenth annual meeting of the New Jersey Pharmaceutical Association was held at Educational Hall, Asbury Park, on Wednesday and Thursday, May 21st and 22d. President R. W. Vandervoort, of Newark, called the meeting to order, and prayer was offered by the Rev. E. E. Moran. Local Secretary W. C. Bakes, of Ocean Grove, delivered the address of welcome, extending a cordial greeting to the association, on the part of local members.

The Treasurer, Mr. Wm. Rust, of New Brunswick, reported that the balance on hand Feb. 1st, 1884, was $377.36. The report was accepted and referred. A resolution indorsing the Campion plan was offered, which gave rise to a discussion as to its working. At the afternoon session of Wednesday, the following gentlemen were elected members of the Association: George F. Brown, Rakway; R. B. Cusack, Asbury Park; William F. Cox, Princeton; L. O. Grenelle, Princeton; Joseph H. Rosell, Jr., Freehold; Wm. E. Ramsay, Perth Amboy; S. D. Woolley, Asbury Park; Wm. B. Duryee, Freehold; W. O. Kuebler, Newark; J. J. Reid, Asbury Park; James E. Weeks, Jersey City.

President Vandervoort appointed the following committees: Committee on Papers and Queries—Messrs. Reeve and Thorn, Medford; Charles Holzhauer, Newark. Delegates to meeting of the A. P. A.—E. A. Sayre, Brooklyn; W. R. Laird, Jersey City; H. P. Thorn, Medford; Messrs. Walker, of Freehold, and Woolley, of Asbury Park. The next meeting will be held in Camden, the third Wednesday in May, 1885.

The following are the officers elected for the ensuing year: *President*, A. P. Brown, Camden; *Vice-Presidents*, F. B. Kilmer, New Brunswick; R. E. Parsons, Orange; *Recording Secretary*, R. H. Vansant, Ocean Grove; *Corresponding Secretary*, R. J. Shaw, Plainfield; *Treasurer*, William Rust, New Brunswick; *Standing Committee*, F. B. Kilmer, New Brunswick; C. G. Am Ende, Hoboken; W. C. Bakes, Ocean Grove; D. Wood Brant, Newark; H. P. Thorn, Medford.

Texas.—The fifth annual meeting of the State Pharmaceutical Association was held at Waco, Texas, May 13th to 15th. The meeting was called to order by the President, E. M. Wells, of Fort Worth, and J. H. Bradley, of Taylor, was appointed to act as secretary *pro tem.*

The election of officers resulted as follows: E. M. Wells, Fort Worth, *President;* T. Kalteyer, San Antonio, *1st Vice-president;* W. J. Morley, Austin, *2d Vice-president;* J. B. Moore, Cameron, *3d Vice-president;* J. H. Bradley, Taylor, *Secretary;* E. W. Lancaster, Marshall, *Treasurer.* The President then appointed an *Executive Committee*, consisting of W. B. Morrison, of Waco; Dr. W. Caston, Corsicana, and J. W. Graham, Austin. *Committee on Notes and Queries*, C. N. Klauber, of Fort Worth; Joseph Waldauer, of San Antonio, and Dr. W. H. McKay, of Tyler.

Virginia.—The State Pharmaceutical Association, at its annual meeting held at Richmond, May 20th, elected the following officers for the ensuing year: Wm. A. Strother, *President*, Lynchburg; R. H. Stratton, *1st Vice-president*, Gordonsville; Dr. E. H. Craighill, *2d Vice-president*, Lynchburg; W. D. Hudson, 3d *Vice-president*, Alexandria; B. H. Gorrell, *4th Vice-president*, Lexington; Ed. R. Beckwith, *Secretary*, Petersburg; F. H. Masi, *Treasurer*, Norfolk; T. Roberts Baker, *Cor. Secretary*, Richmond. [See, also, advertising pages.]

ITEMS.

American Association for the Advancement of Science.—The thirty-third meeting of this Association is to be held at Philadelphia, Pa., commencing Sept. 4th, 1884, to enable its members to take advantage of the meeting in Montreal, Canada, on the 27th of August, of the British Association for the Advancement of Science, which, this year, comes across the Atlantic.

The Council of the British Association has invited the fellows of the American Association to join in the meeting at Montreal on the footing of Honorary Members, and the American Association and the Local Committee of Philadelphia have invited the members of the British Association, with their near relatives who may be with them, to take part in the Philadelphia meeting. Invitations have been sent to the leading scientific societies abroad, inviting them to send delegates to the Philadelphia meeting. The probabilities, therefore, are that the Philadelphia meeting will be largely international in its character, and it is likely that steps will be taken to form an International Scientific Association. At the same time with the Association meeting, the International Electrical Exhibition will be taking place in Philadelphia, and probably at the close of the week an Electrical Congress will be held. Other bodies will also be in session during the week, among them the Pennsylvania State Agricultural Society and the American Institute of Mining Engineers.

American Pharmaceutical Association.—The following is the proposed programme for thirty-second Annual Meeting of the American Pharmaceutical Association to be held in Milwaukee, Wisconsin, August 26th, 27th, 28th, 29th, 1884.

Assembly and exhibition room, west side "Turner Hall," *Tuesday*, August 26th.

First Session of the Association, 3 o'clock P.M.

Address of welcome by His Honor, the Mayor of Milwaukee, Emil Wallber. Annual address by the President of the Association. *Evening:* Reception and promenade concert to visiting members at 8 o'clock in the Arcade "Plankinton House." A special committee on introductions will welcome and introduce visitors.

Wednesday, August 27th, *second session. Morning:* Election of officers and business of the Association—adjournment to the exhibition room of the Association in the same building. *Afternoon:* Drive in carriages to points of interest in and about Milwaukee. *Evening:* A musical and social entertainment in the "Arcade Plankinton" by members and friends of the Association.

Thursday, August 28th, *third session. Morning:* Reading of scientific and other papers. *Fourth session. Afternoon:* Continuation of reading of papers and miscellaneous business.

The committee on entertainment will be present on this afternoon, at the Plankinton, to offer suggestions to those visiting members and ladies of points of interest not previously visited.

Special rates for a carriage drive have been secured. *Evening:* A complimentary entertainment by the Milwaukee Pharmacists at Schlitz Park, collation, toasts, speeches, etc.

Friday, August 29th, *morning. Fifth session.* Business of the Association, 2 o'clock P.M., sharp. A three hours' excursion on Lake Michigan.

Supplementary excursions will be arranged at greatly reduced rates.

1. To Kilbourn City, the "Dells of Wisconsin."
2. To Ocon-o-mo-woc, a beautiful lake of popular resort.
3. To Waukesha Mineral Springs.

No. 1. Will require two (2) days.
No. 2. Will require one (1) day.
No. 3. Can be made in half (½) day.

Headquarters will be at the Plankinton, one of the finest and best hotels in the Northwest, where special arrangements have been made for accommodating about 400 guests. Rooms can be had according to location at an average rate of three dollars ($3) per day. Communications engaging rooms addressed to Mr. C. W. White, manager, will receive prompt attention if the time for occupancy is definitely stated.

The Kirby House, two blocks from the Plankinton, will accommodate 200. Rate $2.

The St. Charles (German style table d'hôte), $2 per day. The price of entertainment tickets has been fixed at $3 for each person. Friends or Members of the National Retail Druggist Association will be furnished tickets at the same rates as the members of the A. P. A.

Entertainment tickets will be ready and should be procured from Jos. L. Lemberger, Lebanon, Pa., one week in advance of the meeting of the association to enable the committee to make the necessary arrangements. Effort to secure a reduction in railroad rates are progressing favorably.

PHARMACEUTICAL CALENDAR.—JULY.

Additions to and Corrections of the following Calendar are solicited.

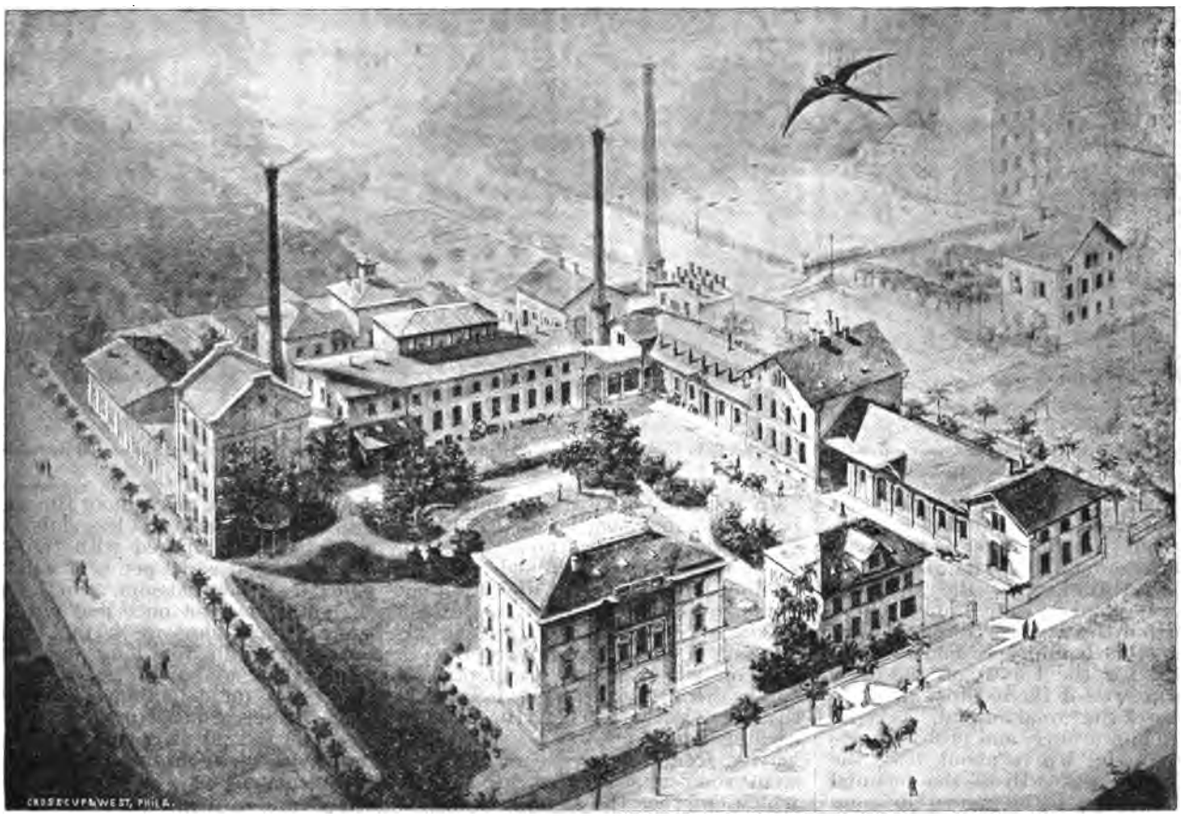
Date.	Society Meetings.	Date.	Society Meetings.
Tues. 1st.	Davenport (Iowa) Pharm. Assoc.—Quar. M.	Thurs. 10th.	Newark (N. J.) Pharm. Assoc.—Meet.
	Maryland Col. Pharm.—Meeting.		California Pharm. Soc. and Col. Phar.—Q. M.
	St. Joseph (Mo.) Pharm. Assoc.—Meet.		Philadelphia Col. Pharm.—Alumni Phar. M.
Wed. 2d.	Rhode Island Pharm. Assoc.—Quart. M.		Maryland Col. Pharm.—Semi-annual M.
Thurs. 3d.	Louisville (Ky.) Coll. of Pharm.—Pharm. M.		New York Germ. Apoth. Soc.—Semi-an'l M.
Mon. 7th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.		Lancaster Co. (Pa.) Pharm. Assoc.—Meet.
	Pittsburg (Pa.) Col. of Pharm.—Quar. M.	Tues. 15th.	St. Joseph (Mo.) Pharm. Assoc.—Meet.

American Druggist

Vol. XIII. No. 8. NEW YORK, AUGUST, 1884. Whole No. 122.

Dr. C. Chr. Conrad Zimmer.

Dr. George Kerner.



The " Zimmer Quinine Factory " in Frankfort on the Main.

[ORIGINAL COMMUNICATION.]

THE ZIMMER QUININE FACTORY IN FRANKFORT ON THE MAIN.

THE interest which attaches to the foreign production of cinchona alkaloids, since the removal of the duty on quinine, and especially since one of the largest manufacturing firms of these salts in the United States has recently transferred a large part of their works abroad, leads us to presume that our readers will be interested in the accompanying illustrations of Conrad Zimmer's quinine works, in Frankfort on the Main. The special reason for referring here to this manufactory is the fact that one of the members of the firm of William Wood & Company, during a recent visit to Germany, was enabled, through the kindness of Dr. G. Kerner,* the chemist of the works, to visit the entire factory and see the entire process of manufacturing cinchona alkaloids and salts in all stages of the process; a favor rarely granted, we may add, on account of the value of the trade-secrets involved.

The works were founded by Conrad Zimmer, in 1837, and have for some time been noted, not only on account of their extent, but also for the excellence of their products. For the past twenty-seven years Dr. Kerner has been the active manager of the works, and he has in the mean time become well known as one of the highest authorities in quinology.

It was Dr. Kerner who first published, in 1862, an easy, practical test to ascertain the purity of commercial sulphate of quinine—an act which, coming from the manufacturer himself, is worthy of special commendation, and speaks for the confidence of the author in the quality of his commercial product. This test has maintained its reliability and correctness against numerous criticisms and is universally recognized, being also now adopted by most modern pharmacopœias, including that of the United States.

The extent of the works is but partly shown by the illustration, since much of the work is done in massive vaults beneath the surface of the ground. The firm possess extensive forests of

* Dr. George Kerner, nephew of the well-known poet Justinus Kerner, was born on April 9th, 1835, at Besigheim near Stuttgart, Wurtemberg.

cinchona trees in Java, and in addition to the bark purchased, are able to command a large supply of raw material of their own growth and extremely rich in alkaloids, some of their Java bark having yielded as much as 14% of cinchona alkaloids. The daily output of sulphate of quinine is reported to far exceed two hundred pounds, an amount which is probably not inferior to that turned out by any other European laboratory.

Since the death of Dr. C. Chr. Conrad Zimmer, in 1878, the factory has become the property of his son, Mr. George Charles Zimmer. The elder Zimmer was the pioneer in quinine manufacture in Germany, and with the aid of Dr. Kerner soon raised the quality of their product to the highest excellence, a standard which it still maintains.

HYOSCYAMUS LEAVES.

(Abstract of a paper by William Gilmour, in the *Chemist and Druggist*.)

AUTHORITIES have varied widely in their statements as to whether hyoscyamus is an annual or biennial plant.

This difference of opinion, or confusion, has been still more increased by the fact that wholesale houses and practical pharmacists of late years generally accepted the leaves of the

Fig. 1.

Fig. 2.

Fig. 4.

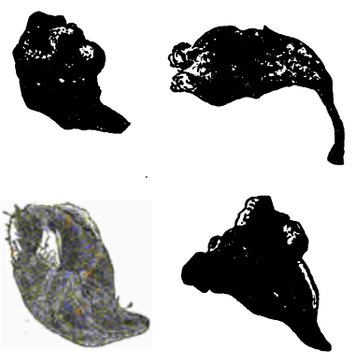


Fig. 3.

Fig. 1.—Biennial Henbane, first year's growth. Fig. 2.—Spray of Biennial Henbane, second year's growth, height, 3 to 4 feet. Fig. 3.—Annual Henbane, height, 12 to 18 inches. Fig. 4.—Dried flowering tops of Biennial Henbane with leaves.

first year's growth of the biennial plant for those of the annual variety. Observant practitioners and experimenters gradually arrived at the conviction that the leaves of the "matured biennial plant" were much more active than those of the "annual"; but on the other hand, there had arisen a demand for the leaves of the first year's growth of the biennial in place of those of the "real annual," as being finer in appearance, and probably also more active. Up to about 1864, the second year's growth of the biennial plant was but little known in commerce, partly owing to the difficulty experienced at that time in preserving the plant through the summer and winter, and partly owing to the exorbitant price in consequence demanded for it. . . . There being no flowers in the *Folia Hyoscyami* in general circulation previous to 1864 (the first year's growth of the biennial plant having no flowers), and the flowers having become a characteristic feature of the officinal plant since that period, the belief has become very common that the annual variety is destitute of flowers. . . .

In view of opinions such as these still prevailing, and more especially in view of the general confusion which has all along surrounded the henbane plant, I have thought that it might not be uninteresting to many, were I to figure the three plants referred to, namely, (1) the biennial plant first year's growth; (2) the biennial plant, second year; (3) the annual plant proper—and indicate the best means of preventing and detecting adulterations of the officinal. I am not aware that the three plants have all been figured previously in any medium accessible to pharmacists, and they are not without a special interest in view of the fact which I pointed out in the paper already referred to, namely, that no reliance can be placed on the two tests generally spoken of as distinguishing a tincture made from a true and one made from a false henbane. The spectroscope, one of the tests referred to, as I there showed, only reveals certain chlorophyll absorption bands common to all varieties of henbane; while the other test, the milky opacity of the tincture with water, is equally fallacious. The sketches are from photographs, kindly sent me by Mr. Usher, Banbury, to whom I am indebted not only for these, but also for specimens of henbane, and much valuable information.

In Fig. 1 we have the biennial henbane in its first year's growth. It will be noticed that it has no aërial stem, the leaves being all stalked and proceeding from the stem underground. This plant continues to put forth fresh leaves, to replace those cut in the earlier part of the season. until well on in autumn, when the first touch of frost causes them to wither away. The root survives the winter, and in the succeeding spring develops a tuft of small leaves, from the centre of which a stem soon appears, bearing leaves, which embrace the stem, and which, therefore, are not stalked. Fig. 2 will sufficiently show this without further explanation. Fig. 3 shows the annual plant which develops its stems and flowers in one year and then dies. When growing, no one could possibly mistake the one variety for the other. The stem (as well as the leaves and flowers) of the annual is smaller and less branching, while the leaves are also less downy, less sinuated, less clammy, and possessing less of the peculiar narcotic odor characteristic of the henbane plant. When in the dried state, most of these characteristics disappear, if not entirely, at least to such an extent as to make recognition between the varieties difficult, if not impossible, particularly in the broken state in which they are generally sold. It is true the odor might still indicate to a certain extent a genuine from a spurious sample, while any one who has bruised the two varietics in a mortar would not fail to notice the irritating effects produced on the throat and nostrils from the downy dust of the biennial plant.

It must be admitted, however, that these are by no means infallible indications of a genuine sample, especially if we keep in mind that the rankness of the odor of the biennial henbane differs at various stages of its development, and, further, that a very small percentage indeed of the genuine in presence of the spurious would entirely vitiate any conclusions arrived at from such a very crude test. In circumstances such as these it is important to know that there is one test, simple but thorough, whereby the presence of even a very minute quantity of the annual plant can be detected among the biennial. It is a peculiarity of the annual variety that, while the deep purple venation of the corolla, so beautifully displayed in the biennial, is sometimes present, it is much more frequently entirely absent, the petals being altogether of a pure sulphur or primrose yellow. This never happens in the case of the biennial, the blossom being almost permeated with very deep purple veins. Mr. Usher informs me that while probably 10 per cent of the annual variety may have the purpel venation less deep and less elaborately intersected compared with the other variety, at least 90 per cent will have the pure yellow blossom. On the other hand, he has not once met with this pure yellow blossom in the biennial variety in all his long experience. Here, then, we have a test, simple but thorough, for detecting any substitution, namely, the occurrence of yellow blossom devoid of purple venation in any suspected sample. The presence of even one pure yellow petal is sufficient to indicate adulteration with the annual plant.

My object in writing this paper would only be half accomplished, did I not protest against the practice which has prevailed of recent years of presenting the henbane plant in a chopped-up or semi-pulverized state. I know of no circumstance which more favors adulteration with inferior qualities, and I may add that I know of none which is less necessary or justifiable. Had such a practice not prevailed, it would have been impossible to foist upon any one, however ignorant, the gross imposition which Mr. Elborne exposed recently at a meeting of the Manchester Pharmaceutical Association, where half a ton of professedly exotic henbane had been offered at the low price of forty shillings per cwt., but which he found to be simply the leaves and stems of Datura Stramo-

nium. The adulteration, or rather, I should say the substitution, there exposed was, to say the least, very clumsy, and very easily detected. The substitution which, it is to be feared, more frequently prevails, and which, owing to the broken or bruised state of the henbane as generally presented to the pharmacist, is very difficult of detection is that of less valuable varieties of henbane for the more valuable officinal variety. Pharmacists, however, have this matter very much in their own hands. Were they in every case to refuse the chopped-up or broken samples, and insist upon being supplied with the flowering tops of the biennial plant alone, that is to say, the cluster detached from the stem where all the finest young leaves converge round the blossom, substitution would be practically rendered impossible. I have attempted to figure (Fig. 4) the appearance of several of these clusters in the dried state, but it is difficult to do more than give a sketch of their general contour. It will be noticed that, while each cluster may exhibit a different outline, they all present one characteristic which it is impossible to mistake. Each cluster detached from the parent stem is complete in itself, and each has the beautiful purple venated petals peeping out here and there from between the mass of young leaves, showing the true origin of the plant. They make a beautiful tincture with, I believe, the maximum effect of the henbane plant, while, in using them, the pharmacist has the satisfaction of knowing that he is using the officinal biennial in a state with which it is positively impossible to mix any of the less valuable varieties, indigenous or foreign.

Patching Platinum Crucibles.

THE author gives his method of avoiding the losses incident to keeping platinum work in repair in laboratories where much fusion work is done. He rubs the crucible and the patch, which should be of stout foil, bright with silica, or rotten stone, welds a light platinum wire to the corner of the patch, and treats the whole for several hours with hot concentrated hydrochloric acid, washing it then with distilled water, and drying. The head of an ordinary iron rivet is rounded off by hammering, and, after being sunk in block of hard wood, is used as an anvil. The anvil is then heated to the highest point with a gas blowpipe, fixed in a horizontal position, and when hot, the crucible is dropped on it. The patch is held over the point of operation, by means of the thin platinum wire, and a few taps of a light hammer serve to fix it to the crucible. The wire is then nipped off, and the patch firmly united to the crucible by continued tapping, the metal being kept at as nearly a white heat as possible. Mr. Seaman has now three such patched crucibles, one of which has served for at least two hundred fusions and is still in good order.—H. J. SEAMAN, *Engin. and Min. Journ.*

Transfusion of Peptonized Blood.

AT a recent meeting of the Paris Academy of Sciences, a paper by Afanassiew was presented, in which he reported the results of experiments made with a view of ascertaining whether blood previously peptonized (at least partly) would be better borne on transfusion than fresh blood or blood treated in a different manner. So far he has obtained very favorable results, having transfused from one dog to another more than 400 cubic cent. (13½ fl. oz.) of peptonized blood (= nearly 100 Cc. of peptone and 300 Cc. of blood).—*Comptes Rend.*, 1884, 1,349.

[ORIGINAL COMMUNICATION.]

CAFFEINE AND ITS DOUBLE SALTS.

BY E. MERCK.

THE medicinal use of caffeine and of its salts has not hitherto been very considerable, it having been confined to the treatment of hemicrania and occasional cases of morphine and alcoholic intoxication, and it remained for modern research to discover the value of caffeine as a remedy for heart diseases.

It is a well-known fact that the caffeine salts which have hitherto been used are comparatively very unstable, the same resolving, on solution, into their component parts, and their use in medicine was, therefore, restricted, owing to their instability, while the comparative insolubility of pure caffeine was, on the other hand, also a hindrance to its medicinal use.

Gubler in 1879, and later Shapter and Leech, called attention to the diuretic action of caffeine, while Leblond and Dr. Brakenridge declared in 1883 that caffeine was a valuable remedy for regulating the action of the heart, and they advanced theories which later research has proved to be correct.

Tanret also pointed out that *caffeine* in combination with the *sodium* salts of *cinnamic*, *benzoic*, and *salicylic acids* was free from troublesome properties of the simple salts, and that these double salts were of constant composition and easily soluble—statements which were fully confirmed by my investigations. These facts having been ascertained, the difficulties in the way of a general use of caffeine in medicine were wholly removed, and this year Dr. Riegel, of Giessen, has continued his clinical experiments in cases of heart disease with the double salts and has obtained results in every respect superior to those which were previously obtained with caffeine and its simple salts.

My double salts of caffeine are prepared in fixed equivalent proportions, so that for instance caffeine sodium benzoate contains 50% caffeine (1.0 gramme of the double salts = 0.5 gramme pure caffeine), the caffeine sodium cinnam[yl]ate and salicylate 62.5% caffeine (1.0 gramme of the double salts = 0.625 gramme pure coffeine). All three combinations are readily soluble in two parts of water at the boiling point; the solutions remain perfect also on cooling to 0° C., even if shaken. Professor Riegel has communicated his experiences with caffeine to the Third Congress on Internal Medicine held this year at Berlin, the following being a resumé of his communication.

Caffeine is a remedy in cases of heart disease, somewhat similar to digitalis; it has, however, the advantage over the latter that its effect is immediate, while the effect of digitalis is not experienced for some days, and further that the patients can bear the doses of caffeine without trouble or difficulty. Only in rare cases do unpleasant effects, nervous excitement, result from the administration of caffeine.

Caffeine does not produce cumulative effects, a point which is of considerable importance, when the toxic effects of digitalis are borne in mind.

Caffeine retards the pulse and produces, at the same time, arterial pressure, as also diuresis (provided the state of the kidneys be histologically normal). It therefore serves as a diuretic and further assists in the production of compensating hypertophy in case of imperfect action and stenosis of the valves of the heart.

In cases when digitalis has failed to produce any further effect, trials with caffeine have often led to satisfactory results, as well as when the patient finds him or herself unable to take digitalis.

The administration of narcotics and especially morphine, at the same time as caffeine, should be avoided; the two seem to act antagonistically.

Caffeine should not be administered in too small doses; those fixed by the Ph. Germ. II. are too small.

Professor Riegel begins cautiously with 0.8 gramme [12 grains] per diem, increasing same quickly, provided the patient be able to bear it, to 1.8 [28 grains] grammes per diem.

The double salts of caffeine produce the full effects of the pure alkaloid and of its simple salts, but possess the great advantage of being readily and easily soluble and of being stable.

DARMSTADT, June 18th, 1884.

Hazeen.

SYMPHONIA FASCICULATA (Dup. Th.) is a handsome Madagascar tree belonging to the family of Clusiaceæ. It is named by the natives *hazeen* ("hazigne"), or "little *vongo*," and its fruit is called *voa-su-vuara*, according to Poivre (in a note in Jussieu's herbarium). All portions of the tree are filled with a milk-sap. The branches, leaves, and fruit, when incised, exude this in form of a viscid, bright-yellow juice, which soon turns to resin on exposure to air. This is, of course, inflammable; it is used to make torches of and for calking ships.

The fruits are ovoid-acute, about 1½ decimeter (6 inch.) long, and 1 Dm. (4 inch.) thick, and have a thick, coriaceous and slightly rugged skin. Each contains from 60 to 100 obovoid seeds, about 2 Cm. (¾ inch) long, pale-gray, and marked with a handsome network of vascular vessels on the surface. It contains a single obovoid embryo containing a large quantity of fatty matter.

This fatty matter is eatable, but the natives employ it also for burning in lamps and for a great variety of domestic and *medical* uses. Among its special uses is that in form of salve, prepared by mixing the fat with the resin exuded by the tree, as a remedy in skin diseases (such as leprosy, itch, and ulcers) and as an embrocation in rheumatism and contusions.

A chemical analysis of the seeds is in progress.—H. BAILLON in *J. de Ph. et Ch.*

Aveloz Milk.

THIS is the milky juice of an euphorbiaceous plant, found in the interior of the Brazilian province of Pernambuco, and south of Parahyba. Its vulgar name is *aveloz*, and there are three varieties distinguished, popularly known as "male aveloz," "female aveloz," and "wild aveloz." The sap of the wild is said to be sweet, and exceedingly digestive; that of the male is said to be caustic, and that of the female (*Euphorbia Phylanthus*) to have the properties of both of the former in a lesser degree.

This milky juice is highly lauded by Brazilian practitioners as an effective remedy in cancer. It is not applied in its fresh condition, as it is too diluted; but it is first concentrated to a solid extract, then "assayed" [how?] and dissolved in white vaseline. It is applied with a soft pencil or brush.—After *Chem. and Drug.*

This remedy has only been known and used since about November of last year. Whether the extremely favorable reports as to its efficacy will be confirmed by others remains to be seen, but seems to be very problematical.

Barbadoes Aloes is likely to become yet an article of export from St. Helena. The plant is spreading quite largely over considerable tracts of the island.

Essence of Limes from Trinidad.

MR. E. M. HOLMES has examined some oil of limes which was offered for sale in the London market in March last. It had such an exceedingly fragrant odor, and resembled in odor and taste so closely the finest or "perfumer's" essence of lemon that it was doubted whether it was obtained from limes.

On examination, its boiling point and color reactions were found to closely correspond with oil of lemon; its sp. gr. (0.8741) was a little higher than that of the latter (0.8566 to 0.8655), but in solubility it differed greatly. While commercial oil of lemons is barely soluble in 15 parts of alcohol (sp. gr. 0.838), the Trinidad oil of limes is soluble 1 in 5 parts; so is also commercial oil of limes. Its taste is different from the latter.

On inquiry of Mr. Holmes, Mr. H. Prestoe, Director of the Botanic Gardens at Trinidad, informed him that the odor of West India, or specially of Trinidad limes, is rather that of lemons. The tender parts of the lime there have the odor of *Aloysia citriodora* (lemon-scented verbena). In the treatment of the fruit for the oil, the more rapid the process, the more pronounced will be the lemon odor, provided fresh fruits are used. A strong flavor of limes, more or less tinged with that of turpentine, seems to be the result of treating stale or decomposed fruit tissue. The plan adopted in Dominica and Montserrat, of crushing the limes as received from day to day, and then, on the attainment of a large quantity of pulp, proceeding to boil down or distil, *seems completely to destroy the fine flavor* of the resulting essence. In some places, limes and lemons are grown on the same field, and both are worked off by hand together. The West India limes are the finest, and quite unmatched for size and exuberance in any part of the western tropics.

Selections from the New York and Brooklyn Formulary.

ELIXIR ADJUVANS.

Adjuvant Elixir.

Sweet Orange Peel	2 av. oz.
Coriander	1 " "
Caraway	1 " "
Wild Cherry	4 " "
Glycyrrhiza, Russian, peel'd.	6½ " "
Alcohol, Water, each	a suff. quan.
Syrup, enough to make	1 gallon.

Grind the solids to a moderately coarse (No. 40) powder, and having mixed *one* (1) *volume* of alcohol with *two* (2) *volumes* of water, moisten the powder with *four* (4) *fluidounces* of the mixture, and pack tightly in a percolator. Then gradually pour menstruum on top, until *eighty-eight* (88) *fluidounces* of percolate are obtained. Mix this with *forty* (40) *fluidounces* of syrup, and filter.

Comment. This is an excellent vehicle for the administration of disagreeably-tasting saline or bitter medicines. It has been adopted after numerous trials, as the best vehicle for disguising alkali bromides or iodides.

ELIXIR TARAXACI COMPOSITUM.

Compound Elixir of Taraxum.

Taraxacum	480 grains.
Wild cherry	480 "
Sweet Orange Peel	480 "
Glycyrrhiza, Russian, peeled	960 "
Cinnamon	120 "
Cardamom	120 "
Canada Snake Root	120 "
Caraway	120 "
Cloves	120 "
Pure ext. of Glycyrrhiza.	60 "
Alcohol, Water, each	a suff. quan.
Syrup	32 fl. oz.

Grind the solid substances to a moderately coarse (No. 40) powder, and percolate, in the usual manner, with a mixture of *one* (1) *volume* of alcohol, and *two* (2) *volumes* of water, until *sixteen* (16) *fluidounces* of percolate are obtained. In this dissolve the extract, and, lastly, add the syrup.

If a precipitate should make its appearance in the elixir, on standing, it should be incorporated with the liquid by shaking, before use.

Comment. The above formula has been in successful use and considerable demand long before being incorporated in the Formulary, and the committee is indebted for it to the disinterestedness and liberality of one of its own members. It will be found one of the best, if not the very best, vehicle for quinine and other equally bitter substances.

The formula has elicited some correspondence lately, in regard to the apparently small quantity of percolate (16 fl. oz.) directed to be collected. It maintained that the 16 fl. oz. would not contain the whole of the soluble matters in the aromatics. Mr. S. J. Bendiner, the author of the formula, replied to it (in *Pharm. Rec.*), by stating that the 16 fl. oz. contained all that is practically requisite, the little matter remaining behind being of no account for the purposes for which the elixir is intended. We are of the same opinion. Still, if any one wants to be very exact, he may use the process of repercolation, and use the reserved dilute tincture obtained in exhausting the previous lot, for moistening a new lot and obtaining the first percolate of 16 fl. oz.

ELIXIR CATHARTICUM COMPOSITUM.

Compound Cathartic Elixir.

Resin of Podophyllum	8 grains.
Resin of Leptandra ("Leptandrin")	16 "
Alcohol	½ fl. oz.
Fluid Extract of Senna	2 "
Tartrate of Potassium and Sodium	2 av. oz.
Bicarbonate of Sodium	120 grains.
Syrup	2 fl. oz.
Compound Elixir of Taraxacum	2 fl. oz.
Elixir of Glycyrrhiza, enough to make	16 "

Dissolve the resins in the alcohol, and add the solution to the other liquids previously mixed, and in which the tartrate of potassium and sodium, and the bicarbonate of sodium have been dissolved.

The product should *not* be filtered, and should be shaken up before any portion of it is dispensed.

Average Dose: 2 fluidrachms.

Comment. This preparation has been in regular use in the practice of various physicians in New York and Brooklyn. It has also been employed, with excellent results, in public hospitals. A prompt and pleasant liquid cathartic, as a substitute for the usual bilious pills, is often desired, and the above formula, submitted to and approved by competent medical authority, will be found of wide applicability.

"ELIXIR OF CALISAYA."

The Formulary provides for *two* different kinds of this, one made from Cinchona bark, and the other from Cinchona alkaloids.

a. ELIXIR CINCHONÆ.

Elixir of Cinchona.

(Elixir of Cinchona Bark; Elixir of Calisaya Bark.)

Tincture of Cinchona (U. S. Ph., 1880)	2½ fl. oz.
Aromatic Spirit	2 " "
Syrup	6 " "
Phosphate of Calcium	120 grains
Water, enough to make	16 fl. oz.

Mix the liquids, allow the mixture to stand for twenty-four hours or longer, then incorporate the phosphate of calcium, and filter through a well-wetted filter, returning the first portions of the filtrate until it runs through clear.

Each fluidounce represents about 14 grains of yellow cinchona.

b. ELIXIR QUININÆ COMPOSITUM.

Compound Elixir of Quinine.

(Elixir of Cinchona Alkaloids. Elixir of Calisaya Alkaloids.)

Sulphate of Quinine	16 grains
Sulphate of Cinchonine	8 "
Simple Elixir	16 fl. oz.

Triturate the sulphates of quinine and cinchonine with a portion of the simple elixir, then mix with the remainder, and agitate well until the salts are dissolved. Finally filter.

Each fluidounce contains 1 grain of sulphate of quinine and ½ grain of sulphate of cinchonine.

If it is desired to impart to this elixir a brownish color, this may be effected by the addition of 10 minims of caramel to each pint.

Comment. The quantity of sulphate of quinine and sulphate of cinchonine here directed approaches very near to the utmost limit which the simple elixir will dissolve. When the committee studied the elixirs of cinchona and other alkaloids, it made the observation—already noticed by others before—that the bitterness of these is much increased by adding acids to the solutions or by using comparatively soluble salts. Solutions of the pure alkaloids themselves in any liquid, taste much less bitter than the solution of a corresponding quantity of a soluble salt. It was attempted to employ this observation in the case of the present elixir in this way, that a sufficient quantity of water of ammonia was added to combine with the sulphuric acid of the quinine salt, so that the quinine might be set free and remain dissolved, *as such*, in the menstruum. After several months' standing, however, samples of the elixir thus prepared showed slight precipitates, no doubt owing to the fact that a trifling excess of ammonia had been used. The attempt was therefore abandoned and a simple solution of the alkaloidal sulphates in elixir adopted.

Regulating the Temperature of an Air-Bath.

IN order to preserve a constant temperature in an air-bath (often necessary in technical laboratories where the same operations constantly recur), the most certain and simple method, according to Prof. Lothar Meyer, is to to employ one of the small French gas regulators made by Giroud, and known by the name of *rheometer*. They are sold at about four or five francs apiece. The complete series comprises fourteen, each of which permits the passage of a definite quantity of gas per hour, namely, of 50, 60, 80, 100, 120, 130, 140, 150, 160, 170, 180, 190, and 200 liters. Prof. Meyer has found that they are, almost without exception, thoroughly reliable. If one, or several of these, be interposed between the gas supply and the burner, a very steady and constant temperature is obtained. If another temperature is wanted, a different rheometer should be interposed. Hence it is advisable to have the whole series. Where, however, only certain fixed temperatures are required to be maintained, it is only necessary to ascertain from the gas-meter the amount of gas consumed per hour for each of these temperatures when the correspondent rheometer be selected or purchased.

These rheometers are best used in connection with the air-baths constructed by Prof. Meyer (see NEW REM., 1883, p. 236).—After *Ber. d. Deutsch. Chem. Ges.*, 1884, 483.

Notes on Commercial Drugs and Chemicals.

(From Gehe & Co.'s Handelsbericht.)

(Concluded from p. 113).

Ethene Bromide and Chloride.—These two liquids, $C_2H_4Br_2$ and $C_2H_4Cl_2$ respectively, have lately again been in somewhat more increased demand as anæsthetics. *Ethene Iodine*, $C_2H_4I_2$, a crystalline solid, has also been used for similar purposes.

Ethyl Bromide — C_2H_5Br — which chiefly serves for internal use, while those mentioned in the preceding paragraph are preferred for external application, was also in good demand.

Bromine.—The large production of this article has for a long time been far in advance of the demand for bromides, for which it was principally consumed. Attention has lately been directed to its powerful antiseptic and disinfectant properties, and the invention of Dr. A. Franck of Charlottenburg, to employ it in form of cakes—composed of kieselguhr into which bromine has been soaked up—have made its universal employment easy and practical.

It may be useful to remember that about 5 gm. (75 grains) of "solidified bromine" (containing about 75% of liquid bromine) are required to thoroughly disinfect a cubic meter of space (about 34 cubic feet). The vessel containing the bromine or bromine-block should be put, open, in an *elevated* place in the room, since bromine vapor is 5½ times as heavy as air and at first sinks to the bottom. For disinfecting large rooms, buildings or hospitals, the inventor has constructed special apparatus [all of which simply insure the uniform and gradually diffusion of the vapor throughout the confined space].

Quinidine (Hesse's *Conchinine*)—which only a few years ago was worth twice as much as cinchonidine, is now even cheaper than the latter alkaloid [this is not quite the case here], which has had a very large demand especially from the U. S., while the great quantities of cuprea bark worked by manufacturers during the last few years have furnished an abundant supply of quinidine, more than enough to satisfy the demand.

Chloral.—A slight increase in price took place, but it is reported that new works are being built for its manufacture. Its consumption appears to diminish slightly.

Elaterium.—The production of white elaterium during last year's season was short and the price therefore ruled higher. Nevertheless that of *crystallized elaterin* has remained at its old figure.

Extractum Ferri Pomati.—Gehe & Co. are in the habit of filtering the extract while liquid, before it is evaporated in the vacuum apparatus. But, on trying to redissolve it, there always will be found a slight insoluble sediment. Gehe & Co. have now found that, by adding a little freshly precipitated ferric oxide, a clear filtrate can be immediately obtained. This expedient, however, was useless when tried on a large scale.

Hyoscyamine.—Gehe & Co. (and probably some other manufacturers) prepare a crystallized hyoscyamine as well as two kinds of amorphous, one of which is prepared form the seeds, and the other from the whole herb. The latter is a "crude hyoscine."

Iodoform.—Neither the consumption of iodoform as a dressing for wounds, nor that of corrosive sublimate as an antiseptic in surgery show any diminution in demand. It is scarcely possible to keep pace with the orders coming in, particularly for the levigated article, which must afterwards be dried in the air, which requires a long time.

Naphtalin — can now be supplied also in form of powder, though this is not as white as the crystals; it is, however, lower in price.

Ichthyol.—It has been agreed upon to use the term *ichthyol* hereafter only to denote the crude product obtained from the bituminous mineral found near Seefeld in the Tyrol. On the other hand, the artificial product, used in medical practice against rheumatism, skin diseases, etc., and which is only prepared by Gehe & Co., is termed "ichthyol-sulphonate of sodium," the demand for which has been moderately active.

Pancreatin in dry form is in increasing demand, less so in Germany than abroad.

Pepsin.—The consumption of this article is constantly increasing, the amount used in 1883 being twice that of the preceding year. Attention is drawn to one American variety of great digestive power (700%), but it seems that Germany prefers a 100% pepsin [we doubt this, Ed. A. D.].

Podophyllotoxin.—The active principle of podophyllin has been prepared in larger quantities. It is believed by Gehe & Co. that some of it is used in the manufacture of certain popular laxative dragées and confections.

IMPROVED SULPHURETTED HYDROGEN APPARATUS.

Of the many forms of hydrosulphuric apparatus so far devised, that of Kipp is probably the most elegant, but unfortunately it has many drawbacks, among them chiefly those that it cannot be re-charged without taking the apparatus altogether apart, and that the saturated acid solution cannot be drawn off *in loco*.

These and other defects are completely removed by the modification devised by C. Reinhardt.

The acid-reservoir, of the capacity of about two liters (one-half gallon), is a glass globe provided with two necks, *b* and *c*. Through the stopper in *c* passes a tube of eight millimeter bore, which is provided with a stop-cock *e*, a mud-trap *g* (with lateral neck *h*), and another stop-cock *f*.

The glass globe rests upon a conical support made of sheet zinc, in which three openings are left; one in the centre, to permit access to the faucet *e*; another below, corresponding to faucet *f*, and another at the side, corresponding to the neck *h*.

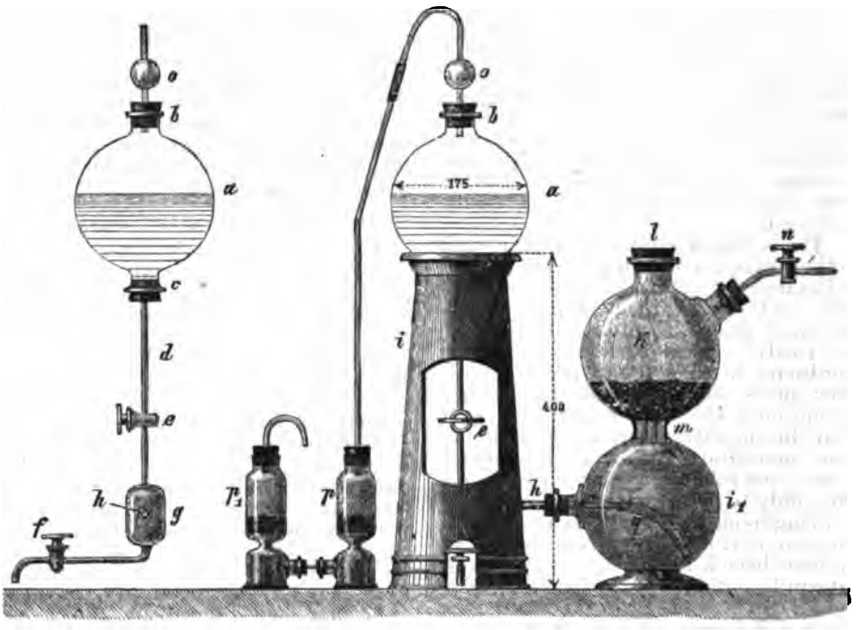
The tube *h* connects the acid-reservoir *a* with the secondary reservoir i_1 by means of a rubber stopper. *k* serves as a receptacle for the sulphide of iron, and may be easily refilled at any time by removing the stopper *l*. The generated gas passes off through the faucet *n*.

In the neck *b* of the acid-reservoir is inserted a rubber stopper bearing a glass tube with bulb *o*, which leads by a rubber connection to the absorbers *p* and p_1, the lower portion of which is filled with solution of potash, while the upper portion contains pellets of glass wool and glass beads.

The apparatus is charged and used as follows: Sulphide of iron having been introduced into *k*, the stopper *l* is inserted air-tight. Next the connecting tube *h* is passed through the rubber stopper, the piece *g* is attached and the stopper tightly inserted in the neck. The zinc cone is now placed over the glass tube *d*, upon which the rubber stopper connecting with *c* has previously been slipped. Next the globe *a* is connected by the insertion of this stopper. The faucet *e* being closed, a sufficient amount of acid is now poured into the reservoir (best a mixture of one volume of crude hydrochloric acid and one volume of water), and the tube *o* is next inserted.

On now opening the faucets *e* and *n*, the acid rises into *k*, and the evolution of gas begins. On closing faucet *n*, the pressure of gas causes the acid to re-ascend in *a*. Any accompanying hydrosulphuric acid gas is arrested by the potash solution in *p* and p_1. Finally the faucet *e* is closed, and the apparatus is at rest.

When the acid is exhausted, it is drawn off from faucet *f*, after opening *e* and *n*.



Reinhardt's improved sulphuretted hydrogen apparatus.

[This apparatus (which appears to us to be indeed the most convenient and perfect yet devised) is made by C. Gerhardt (Marquardt's depot of chem. apparatus), in Bonn, and may be obtained through any first-class dealer in chemical apparatus.]—*Zeitschr. f. anal. Chem.*, 1884, 169.

Bisulphite of Sodium, which was recommended by Professor Lunge as a neutralizer of chloride of lime or, in other words, as "antichlor," is finding its way into many industries, for instance that of the paper manufacture. It has been found that one part of this salt can neutralize about as much chlorine as five parts of crystallized hyposulphite of sodium (or antichlor).

Hamamelis Virginica has had a very unfavorable verdict bestowed upon it by Prof. Dujardin-Beaumetz, at a late meeting of the Paris Therapeutical Society. He stated that, while not agreeing with those who believed no substance could possess therapeutic properties unless it were poisonous in large doses, yet he felt constrained to say that he had never observed even the slightest physiological effects from witch-hazel.

Algin and Sodium Alginate and their Economic Uses.

(ABSTRACT from a paper "On the Economic Applications of Seaweed" by Ed. C. C. Stanford, F.C.S., read before the Soc. of Arts, London).

If the long fronds of *Laminaria stenophylla* be observed after exposure to rain, a tumid appearance will be observed, and sacs of fluid are formed from the endosmosis of the water through the membrane, dissolving a peculiar glutinous principle. If the sacs be cut, a neutral glairy colorless fluid escapes. It may often be seen partially evaporated on the frond as a colorless jelly. This substance which is then insoluble in water, is the remarkable body to which I have given the name of *algin*. The natural liquid itself is miscible with water, but coagulated by alcohol and by mineral acids. It contains calcium, magnesium, and sodium in combination with a new acid, called by the author *alginic acid*. When this natural liquid is evaporated to dryness, it becomes insoluble in water, but is very soluble in alkalies. This new substance is so abundant in the plant that, on maceration for twenty-four hours in sodium carbonate in the cold, the plant is completely disintegrated. The mass thus obtained is a glutinous mass of great viscosity, and difficult to deal with on that account. It consists of the cellulose of the plant mixed with sodium alginate. The cells are so small that they pass through many filters, but by cautiously heating it the mass can be filtered through a rough linen filter bag, the cellulose being left behind, and after the algin is removed, this is easily pressed.

The solution contains dextrin and other extractive matter, and is precipitated by hydrochloric or sulphuric acid; the alginic acid precipitates in light gray albuminous flocks, and is easily washed and pressed in an ordinary wooden screw press. A filter press made for me by Messrs. Johnson & Co. answers perfectly well for this operation, but not so well for the preceding. It forms a compact cake, resembling a new cheese, and has only to be stored in ordinary cool drying rooms, where it can be kept any length of time. If desired, by adding a little bleach during the precipitation, it can be obtained perfectly white. The algin can be sent out in this state; it is only necessary to dissolve it in sodium carbonate in the cold for use. If, however, it be sent out as sodium alginate, it must be dissolved to saturation in sodium carbonate, the carbonic acid is disengaged, and sodium alginate is formed. If potassium or ammonium carbonate be used, the alginates of potassium or ammonium are formed, which are similar to the soda salt. The bicarbonates of these alkalies may also be used, but the caustic alkalies are not such good solvents.

The sodium alginate forms a thick solution at two per cent, it cannot be made above five per cent, and will not pour at that strength. Its vicosity is extraordinary. It was compared with well boiled wheat starch, and with gum arabic in an ordinary viscometer tube. It was found that algin had *fourteen* times the viscosity of starch, and *thirty seven* times that of gum arabic. The solution may be alkaline, or neutral, or acid, according to the degree of saturation; if alkaline, it may be made distinctly acid by the addition of hydrochloric acid, but any excess at once coagulates it; a two per cent solution becomes semi-solid on this addition.

The evaporation is effected in a similar manner to that of gelatin, in thin layers on trays or slate shelves in a drying room with a current of air or on revolving cylinders heated internally by steam; high temperatures must be avoided. The solution keeps well. Thus obtained, the sodium alginate presents the form of thin, almost colorless sheets, resembling gelatin, but very flexible. It has several remarkable properties which distinguish it from all others known substances.

Algin or sodium alginate in solution is precipitated or coagulated by alcohol, ethylic and methylic, acetone and collodion (but not by ether), by hydrochloric, nitric, sulphuric, and many other acids, as well as many salts [all enumerated in the original].

The solution is not precipitated nor coagulated by alkalies and salts of alkalies, potass. bichromate and chromate; starch, glycerin, ether, cane sugar, amylic alcohol, boracic acid, acetic, carbolic, tannic, and certain other acids [and some other substances enumerated in the original].

It does not precipitate the ordinary alkaloids.

It is distinguished from albumen which it most resembles, by not coagulating on heating, and from gelose by not gelatinizing on cooling, by containing nitrogen, and by dissolving in weak alkaline solution, and being insoluble in boiling water.

From gelatin, by giving no reaction with tannin; from starch, by giving no color with iodine; from dextrins, gum arabic, tragacanth, and pectin, by its insolubility in dilute alcohol and dilute mineral acids.

It is remarkable that it precipitates the salts of the alkaline earths, with the exception of magnesium, and also most of the metals, but it gives no precipitate with mercury bichloride nor potassium silicate.

Practical Application of Algin.

(The great value of the author's paper appears especially in this portion, in which he points out many useful practical applications of the new substance algin.)

The following practical uses of algin are chiefly dwelled upon:

1. *For sizing fabrics.* A solution of alginate of sodium imparts to goods a thick clothy elastic feeling without the stiffness imparted by starch. (Many other advantages are pointed out which are chiefly of interest to weavers and dyers.)

2. *As an Article of Food.* Algin [alginic acid?] contains carbon 44.39, hydrogen 5.47, nitrogen 3.77, oxygen 46.37 per cent, or about the same amount of nitrogen as Dutch cheese. It has a slight pleasant marine taste, easily overcome if objected to, and may form a useful addition to the kitchen for thickening soups and puddings.

3. *For Pharmaceutical Purposes.* It appears especially applicable for replacing gum arabic in the manufacture of jujubes and lozenges. To make it into jelly requires the addition of gelose or gelatin or the admixture of lemon juice.

It will also be useful for making emulsions of oils (cod-liver oil, etc.), as an excipient for pills, for the fining of spirits [and the manufacture of empty capsules].

4. *For Boiler Incrustations.* The addition of 1 pound of algin to every 1,000 gallons of water in the boiler has been found to produce a calcium deposit of so favorable a condition that it may be blown off with ease. It has been very favorably reported upon.

5. *For Boiler Covering.* Seaweed charcoal mixed with algin has been used advantageously for this purpose under the name of "carbon cement."

The author sums up the results of his investigations and the benefits to be derived from the practical application of the products described in the following manner:

1. The only way to effectually utilize seaweed is to import it in the raw state.

2. By following the wet process, the additional cost is fully made up by the greatly increased amount of iodine and salts obtained from the water solution, leaving two-thirds of the plant for further treatment.

3. That by extracting from this the algin and the cellulose we utilize the whole plant and obtain two new products of considerable commercial importance.

4. That the process is extremely simple, and requires no extravagant plant, nor do operations on the large scale present any serious practical difficulties.

5. That the new substance, algin, has very remarkable properties, which may find many applications not yet known, when it can be put on the market.

6. That the demand for such a substance in fixing and mordanting fabrics alone is enormous.

Our annual export of textile manufactures and yarns is valued at £40,000,000, or more than half the value of our total exports; and a large portion of this requires some dressing material to fit it for the market. We import about £200,000 worth of gum arabic, a good deal of which is used for this purpose; and the war in the Soudan is raising its price and making it scarce.

7. That the supply of raw material is almost unlimited. Seaweed damaged by rain is equally available for the manufacture of algin.

Adulterated Fruit-Jam.

F. A. ADAMS has made an interesting report on English commercial fruit-jams, of which he has analyzed a number. There being no guide or reliable process previously known or agreed upon, the author had to evolve a method of his own, and in order to start from correct premises, prepared a series of pure jams himself.

The constituents to be determined chemically were: glucose, cane-sugar, other soluble matters, ash, and moisture.

The sugar in one hundred parts of dried jam amounted from 74.77 to 96.98 per cent, and it was found that most of this is *inverted*. In this lies the chief distinction of the different jams experimented on; for while in the author's home-made jam not more than about 6.71 per cent of *uninverted* sugar could be found, in the commercial varieties a good deal of it remains uninverted.

The principal ingredient of adulterated jam is apple pulp, which is easily recognized by the behavior of the cells of the pulp towards tincture of iodine. While it is next to impossible to actually identify the peculiar cells of the blackberry, raspberry, etc., etc., under the microscope, and the identity of these jams can be deduced more safely from other considerations, *apple* jams may be rendered evident, under the microscope, by the fact that its cells—to the exclusion of all other cells—are stained a characteristic pinkish purple or greenish color. In the raw apple this color does not necessarily occur when treated with iodine, but always occurs after boiling the apple pulp with dilute acid; but the natural acid of the fruit is usually sufficient by itself gradually to determine the reaction.—*The Analyst.*

Paraldehyde Elixir for Insomnia.

YVON recommends the following formula:

	Gm.	
Paraldehyde	10	= 160 min.
Alcohol, 90%	40	14 fl. dm.
Tinct. Vanilla	2	½ " "
Water	30	1 fl. oz.
Syrup	60	1½ " "

Dose: 1 to 2 teaspoonfuls.

The "Drop" Method of Chemical Analysis.*

BY DR. H. HAGER.

THE customary methods for testing medicinal agents, which are both tedious and require a larger quantity of material, can be superseded by a method which requires merely single drops of the reagent, as well as of the liquid to be examined. For this method the following reagents are needed:—

Red and blue litmus paper and turmeric paper.

Extract of indigo paper, which is turned yellow by hot nitric acid and caustic alkalies, but not by ammonia.

Rosaniline paper as a test for alcohol.

Potassium ferrocyanide paper as a reagent for ferric salts (blue), copper and uranium (deep brown), gold (greenish-brown), platinum (brownish-green to reddish), thallium and vanadic acid (yellow).

Potassium sulphocyanide paper is turned decidedly yellow by bismuth nitrate, bluish black by salts of copper, red by solution of gold, white by mercuric nitrate, black by mercurous nitrate, and blood-red by ferric salts.

Potassium iodide paper is turned red by mercuric salts, green by mercurous salts, yellow by solution of lead. For detecting chlorates 2 to 3 Cc. of the liquid are placed in a small test-tube along with a slip of the paper; 1 Cc. of dilute sulphuric acid is then added, and heat is applied. If chlorate is present the liquid turns yellow.

Mercurous nitrate paper serves when moistened to detect ammoniacal gas, which turns it black; caustic alkalies and alkaline mono-carbonates stain it greenish-brown to black, whilst the alkaline bicarbonates leave it colorless.

Silver bichromate paper turns yellow with free hydrochloric acid.

Besides these the author mentions a number of other papers less frequently needed. The use of all consists in letting a drop of the liquid in question fall upon a slip of the paper.

The author tests for arsenic (arsenious and arsenic acids) by means of slips of sheet brass, 2.5 to 3 centimetres in width and 15 to 17 centimetres in length. The hydrochloric solution is mixed with a little oxalic acid, or the ammonical solution is supersaturated with hydrochloric acid and mixed with oxalic acid in order to reduce arsenic to arsenious acid. A drop of the solution is put upon a brass plate and sharply dried; the place of the drop is then washed with water, when a dark spot of a permanganate color reveals the presence of arsenic. Dark thin outlines still appear in case of dilution with 150,000 parts.

In cases where the papers and the brass plate are not used the author places the two drops (of the reagent and the liquid in question) near each other upon a slip of glass and mixes them. The transparency of the glass renders the slightest turbidity visible. —*Pharmaceut. Central-Halle and Chemiker Zeitung.—Chem. News.*

Bois Piquant, or stinging wood, is reported in the *Répertoire de Pharmacie* by Dr. Heckel Schlagdenhauffen to have notable febrifuge properties. It is a native of Cayenne, and comprises two varieties of *Zanthozylum* (*Z. caribeum* and *Z. perrotetti*). The physicians of Guinea and the Antilles have for a long time been aware of its antefebrile properties, and have held it in high estimation. The writers quoted have separated from the bark a colorless crystalline substance having the formula $C_{12}H_{24}O$ and melting at 285° C.

* Some translators of the German term "Tropf-Methode" have rendered it in English quite incorrectly "guttural method." The *Chem. and Drug.* uses the term "guttulous method" which is at all events preferable. "Drop-Method" is better than either.—ED. A. D.

Brucine a Test for Tin.

DISSOLVE 0.1 gramme of crystallized brucine in 1 C.c. pure nitric acid, and 50 C.c. water, heat to boiling, and cool. This solution gives a purple coloration with solutions containing stannous chloride. Neither zinc chloride, nor nascent hydrogen, nor organic matter, interferes with the reaction, but ammonium sulphide and sodium hyposulphite act like stannous chloride. To test for tin, dissolve the mixed sulphides of antimony and tin, obtained in the ordinary analytical separation, in hydrochloric acid, evaporate, dilute with water, and place a strip of platinum and a strip of zinc in the solution and in contact for several hours; metallic antimony is deposited on the platinum, whilst stannous chloride remains in solution, and can be tested for with a few drops of the brucine reagent. A distinct color has been obtained with a drop containing only 0.0000025 gramme of stannous chloride, whilst a drop containing 0.00002 gramme gave a barely perceptible cloudiness with mercuric chloride. The reagent must not be too dilute, or the color will be pale and indistinct; neither must it be used in excess, for then dirty green is produced instead of purple. The author finds this test for tin more delicate, more striking, and more convenient than the mercuric chloride test.—E. R. DRYER, in *Chem. News.*

A Cholera Remedy.

THE *Chemist and Druggist* of July has the following:

None will be surprised that current literature, medical or otherwise, should be filled with suggestions for the treatment of cholera. Amongst others, Dr. Tison draws attention to a remedy which obtained a certain celebrity in Paris during two previous visits of this epidemic. It was introduced by Dr. Roux both in 1849 and in 1852, and appears in his hands to have been successful. Other physicians of note also were fortunate in its use. The formula is as follows: Dissolve 10 grains of washed sublimed sulphur in rectified sulphuric ether, aiding the solution, if necessary, by gentle heat; immersion of the bottle in warm water is sufficient. Ether dissolves $\frac{1}{10}$ of its weight of sulphur; rectified spirit only $\frac{1}{100}$; consequently highly rectified ether should be selected; 25 drops to 30 are added to a half a wine-glass of sweetened water; seltzer water sufficient to fill the wine-glass completing the mixture, which is then to be given in divided doses. Simple as the preparation seems, it is stated to have proved effectual. M. Boutigny, in an inaugural thesis in 1872, strongly supported this statement, declaring that he had obtained signal success by means of the ethereal solution of sulphur. A strange circumstance is related by the same authority. A patient, evincing dislike to ether as a remedy, had administered to him as a substitute an opium and bismuth preparation, when the symptoms which had yielded to the ether treatment immediately reappeared.

Latour's Chloride of Zinc Paste.

Chloride of Zinc....	50 parts.
Nitrate of Zinc.....	100 "
Water.....	80 "

Dissolve with the aid of heat, and when cool, add to each 100 parts 75 parts of wheat flour. Make a paste and then roll into sheets one-eighth of an inch thick. Preserve in a well-stoppered bottle.—*St. Louis Druggist.*

Muriate of ammonia is said to prevent disturbance of the stomach when tincture of the chloride of iron is administered, when combined in the proportion of one-half grain of the muriate to each minim of the tincture.

Improvement on Fehling's Sugar Test.

As is well known, cuprous oxide separates but slowly from solutions of glucose, especially from weak ones, and in order to determine the end of the titration, filtering has to be resorted to, which is very difficult to effect properly even when a double filter is used.

F. Meyer avoids all filtering, and at the same time hastens the precipitation of cuprous oxide by adding to the boiling liquid, towards the end of the filtration, a few drops of a solution of zinc chloride. The hydrate of zinc oxide formed causes a quick precipitation of the cuprous oxide, and the supernatant, quite clear liquid readily admits of being tested in the usual way with potassium ferrocyanide or copper sulphate. In case the zinc chloride added should have used up the caustic soda of the Fehling's solution, a few drops of a solution of caustic soda must be added.—*Pharm. Z. f. Russl., Chem. and Drug.*

Sophistication of Iodoform with Picric Acid.

DR. BIEL has recently found a common adulterant of iodoform to be picric acid, which is very suitable for the purpose, since iodoform containing it will nevertheless stand the Pharmacopœial tests.

Picric acid may be detected by shaking up some of the iodoform to be tested with water and filtering. The filtrate must be perfectly colorless; even a lemon-colored solution would indicate the presence of picric acid. The filtrate is treated with a solution of potassium cyanide, and if the iodoform is pure, no change is noticed, but if it had contained even a trace of picric acid, within about ten minutes a brownish-red coloration, due to the formation of isopurpuric acid, is formed.—*Pharm. Z. f. Russl., Chem. and Drug.*

Pasteurizing Beer.

ACCORDING to Behrend, yeast cells are not killed by warming; the author, on the contrary, finds that at 55° all the cells are killed. Yeast killed at 55° placed in a food solution with addition of fresh malt-extract, did not show a single living cell after 40 hours at a temperature of 6–7°. Every single bottle of beer should be heated uniformly for a considerable time to the necessary temperature, say 2–3° over 55°. Badly pasteurized beer remains clear when kept cool, but the warmth of a room turns it turbid from formation of yeast, bacteria, fungi, albuminate, and some hop resin. The turbidity of well-pasteurized beer the author finds to be due to a separation of gluten; by heating such beer to 50° it will again become clear, and remain so for a long time.—M. SCHWARZ in *Bied. Centr.*

Hill's Balsam of Honey and Tar.

Balsam of Tolu.....	℥ ij.
Styrax.....	℥ ij.
Opium.....	℥ ss.
Honey.....	℥ viij.
Pine Tar.....	℥ i.
Alcohol.....	℥ xxxij.

Mix and macerate for five days, with occasional agitation, strain, and bottle.—*National Druggist.*

Esmarch's Painless Caustic.

Arsenious Acid.....	1 part.
Sulphate of Morphine..	1 "
Calomel	8 parts.
Polarized Gum Arabic	48 "

When used for the removal of warts, tumors, etc., the surface skin should be removed with a knife or blister, and the powder sprinkled on the denuded surface daily.—*St. Louis Druggist.*

ON A NEW OVERFLOW PIPETTE.

THE well-known overflow pipettes of Gay-Lussac and Stas, whilst adapted for the accurate measurement and delicacy of a given volume of a solution, are not so fit for the use of corrosive fluids, and are not easily extemporized from materials commonly found in a laboratory.

The following pipette is especially adapted for use in alkalimetry, and for the employment of such corrosive solutions as are used in the "copper" method of estimating sugar (Fehling's etc.).

Eyster's overflow pipette.*

An ordinary pipette graduated to deliver a definite volume, is clamped in a reverse position, that is, with the mark down and the jet up. A short piece of rubber tube connects the end that is now the lowest end with one arm of a glass T-tube, the other arm of which is provided with the usual Mohr burette tip or with a glass-bead cock.

This glass-bead cock is simply a short piece of glass rod, somewhat larger than the bore of the rubber tube fused into a bead. This bead, inserted into the rubber tube, effectually stops the flow. When it is desired to open the cock, a slight pinch of the tube over the place where the bead is concealed will open a channel for the passage of the solution. The flow can be regulated with the greatest nicety. This piece of apparatus is old, but does not seem to be as generally known as it should be.

To the lateral arm is attached the rubber tube and pinch-cock which supplies the pipette with the solution from the reservoir. The reservoir is either a common bottle provided with a siphon, or an aspirator bottle. The higher the level of the reservoir above the tip of the pipette, the quicker the pipette will be filled.

In place of the glass cups used in the Stas pipette, I make use of the following arrangement to catch the overflow from the open end.

A large test-tube is fitted with a cork with two holes. Through one the jet of the pipette is passed. One arm of a rather wide bent glass tube is inserted in the other hole. This is the drip tube, and is provided with a rubber tube to carry away the excess of solution.

It is easy to see the mode of action. When the pinch-cock leading to the reservoir is opened, the solution enters and fills the pipette; the air escapes through the drip-tube. When the solution is to be delivered, the lower cock is opened, and the fluid run out until the mark is reached; the air meanwhile enters by the drip-tube, and for this reason care must be taken to have the drip-tube as wide as possible, and not to allow the rubber drainage-tube to dip beneath the fluid in the vessel it connects with.

The error due to reading the meniscus in a reverse position is easily corrected, and in many cases will be eliminated in standardizing the solutions.

I give the simplest form, and one readily made from easily available materials.

If one is somewhat expert in glass-blowing, the end of the large test-tube (or the wide tube used instead) can be drawn out and bent, so that its extremity can be left open for the admission of air. There is some advantage in this in case the volume of the pipette is large, but it is not necessary in every case. — GEO. S. EYSTER, PH.D., *Journ. Chem. Soc.*, V., 218.

* The original paper was not accompanied by an illustration. We have put together an apparatus such as the author describes, and have caused the accompanying cut to be made from it.

ON HESSE'S QUININE TEST.

DR. J. E. DE VRIJ says: "A detailed investigation of different samples of basic sulphate of quinine from German, French, English, and Dutch factories, which I hope soon to publish, has taught me, among other things that, if sulphate of quinine contains *three* or *more* per cent of cinchonidine, its presence is indeed indicated by Hesse's test. [This had been denied by some authorities.] Since *all* specimens of commercial sulphate of quinine contain more than five per cent of sulphate of cinchonidine, not one of them, not even that from Jobst's factory of which Hesse is the technical director, can stand the test if the closed tube is allowed to stand at rest for ten or twelve days, instead of two hours. The ether-layer will then, under all circumstances, contain distinct crystals of cinchonidine."—*Nieuw Tijdsch. v. d. Pharm.*, Feb., 1884.

NOTE by ED. A. D.—Hesse's test was published in NEW. REM., 1879, p. 139, (from *Arch. d. Phar.*). It depends upon the fact that sulphate of quinine is sparingly soluble in water at 50° to 60° C., while the other sulphates are readily dissolved without decomposition, and that, if the cooled solution is supersaturated with ammonia and shaken with just sufficient ether to dissolve the quinine, this quantity will be insufficient to dissolve the other alkaloids, if present to a certain extent. To execute the test, a "quinometer" is necessary, which is a test-tube 10 to 11 millimeters in diameter and 120 *mm.* in height. It is marked at two places, which we will call *B* and *C*, the space from *A* (the bottom) to *B* being 5 cubic centimeters, and from *B* to *C*, 1 *cc.* capacity.

0.5 *cc.* of sulphate of quinine is well shaken, in a large test-tube, with 10 *cc.* of hot water at 50° to 60° C. After setting aside for ten minutes, and shaking, to prevent the sudden expulsion of the mass, the liquid is passed through a small filter, about 60 *mm.* in diameter, into the "quinometer," until the filtrate just reaches the mark *B;* then 1 *cc.* of ether, sp. gr. 0.728 (to mark *C*) is added, and afterwards 5 *cc.* of ammonia water, sp. gr. 0.960. The quinometer is then corked and slowly shaken; the ammonia liberates the alkaloids, and these are taken up by the ether which rises to the top. After *two* hours, the layer of ether should be devoid of crystals, when examined with a lens.

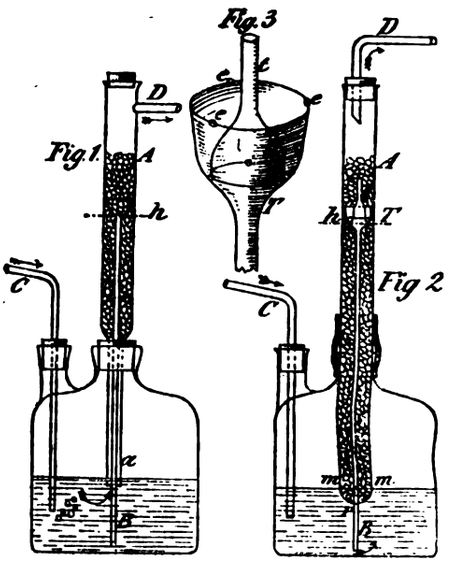
According to Hesse, the absence of crystals, after *two* hours, indicates the absence of more than one per cent of cinchonidine. De Vrij now finds that as *much* as five per cent and more may be present, and may be detected by allowing the tube to stand for ten or twelve days.

Dr. Vrij adds the remark that a commercial sulphate of quinine containing *as much as eighteen* per cent of sulphate of cinchonidine may pass the test of the Netherlands Pharmacopœia, and such a high percentage need not be considered as an intentional sophistication, but is a necessary consequence of the use of barks yielding cinchonidine in the manufacture of quinine.

GAS-DRYING AND WASHING APPARATUS.

JOH. WALTER recommends a new apparatus for washing and drying gases, which is arranged in the following manner.

One neck of a Woulffe's bottle is fitted with a stopper and glass tube *C* (Fig. 1) for the inlet of the gas. In the other neck is fitted a large glass tube, the lower portion of which is narrower than the upper, and which has a small lateral tube (*D*) fused to it near the upper end. Into the interior of this large glass-tube there is inserted a long funnel-tube and the space below the funnel-part as well as part of the space above is filled with glass beads. These are introduced in the following manner. The funnel-tube is inserted just far enough that its lower end enters the narrower part of the tube *a*. Then enough glass beads are poured in to fill the space up to *h*. The funnel is now pushed down to this part and the rest of the beads poured in on top.



Walter's apparatus for washing and drying gases.

The bottle is filled with the appropriate washing liquid (sulphuric acid, potash-solution, etc., etc.), so that the end of the tube *a* is just a little below its surface. As soon as any gas enters the bottle, the commotion of the liquid exposes the submerged end sufficiently to permit at first the contained air and afterwards the gas to find its way upwards between the two tubes. In its passage it carries up a portion of the wash-fluid which is arrested by the column of glass-beads, while the gas finally passes off in a pure and dry condition through *D*. Of course, the upper end of the tube is closed with a stopper.

Still more effective is the apparatus shown in Fig. 2. In this, the wide glass tube is not contracted, but of uniform diameter throughout. Near its rounded bottom it has four holes, through which the gas finds its way upwards through the glass beads. A central opening *r*, in the bottom, permits the funnel-tube to pass through. The little funnel (Fig. 3) has upon its outer margin three glass beads fused

on to it, by which it is held in an axial position. And a further improvement is obtained by inverting inside of the funnel a smaller one, likewise provided with a few beads at the edge.

This apparatus is suitable for uniform currents of gas, but not for irregular and interrupted currents, because it is necessary to adjust the immersion of the tube *a* in proportion to the pressure of the current.—*Dingl. Polyt. Journ.*, 251, 368.

On the Purity of Commercial Sulphate of Quinine.

DR. J. E. DE VRIJ has addressed a memorial to the Dutch government on the subject of the purity of commercial sulphate of quinine, with a view of opening the eyes of the authorities to the possible frauds which may be committed in the fulfilment of government contracts. He says:

"Although the alkaloids existing, alongside of quinine, in cinchona bark, viz., cinchonidine, quinidine, and cinchonine, all possess an antifebrile power but little inferior to that of quinine itself, and, as a consequence of this fact, the government of British India is now using a compound comprising all the alkaloids under the name "cinchona febrifuge" with great success; yet the majority of practitioners in Java have adhered to the old custom, namely, to use the basic sulphate of quinine. Hence, large quantities of this drug are annually sent to Java, and this is purchased by open competition from time to time.

A few months ago, I discovered that each and every lot of commercial sulphate of quinine contains cinchonidine, and that the quantity of the latter in various lots of quinine derived from German, French, English, and Dutch factories—all examined by me—amounted to between 5 and 18 per cent. I also found that, even when there was present as much as 18 per cent of impurity, the sulphate of quinine responded to the test of the Pharm. Neerlandica. When I had ascertained these facts, I thought it incumbent upon me to familiarize myself with the quality and composition of the lot of sulphate of quinine exhibited by government as a sample to bidders. Having received a sample of this lot from the chief of the Medical Bureau of the Forces, I examined it and found it to contain 12.6 per cent of sulphate of cinchonidine. It follows that, if any contractor furnishes quinine coming up to the government standard, it must be accepted. The commercial value of sulphate of quinine is nearly three times as high as that of cinchonidine. Hence, a contractor who agrees to furnish an invoice containing 12.6 per cent of cinchonidine can make a lower bid than one who agrees to furnish a salt with only six per cent of cinchonidine. In other words, the government encourages the offer of impure quinine by offering such a sample to bid on. At the opening of bids of October 1st, 1883, the government awarded the contract to the two lowest bidders, the lowest bid being 127 florins and 145 florins, respectively, per kilo. At the former price, two lots of 50 kilos each were accepted.

Now, this lot of quinine proved to contain 11 per cent of cinchonidine, while the sulphate of quinine *which the same manufacturer delivers in England* contains only 7.5 per cent of cinchonidine. It is a fact, owing to the presence of much cinchonidine in all manufacturers' bark, that all sulphate of quinine prepared from the latter does and must contain some cinchonidine. It is *not* possible for the manufacturer to furnish quinine free from cinchonidine, but the quantity of the latter left in the former may be kept between perfectly fixed limits."

Dr. de Vrij then makes two recommendation which deserve general attention wherever the supply of quinine is subject to public bid or contract.

1. The award of sulphate of quinine should be made to the lowest bidder, provided the true percentage of pure quinine is made the basis. The bidder is to furnish a sample of what he proposes to supply, of not less than 30 Gm. (1 oz.).

2. Or, the supply of basic sulphate of quinine is to be entirely abandoned, and in its place the acid sulphate—bisulphate of quinine—is to be supplied.

The latter alternative appears to be be preferable, since the bisulphate, by its process of manufacture, *cannot* contain *any* cinchonidine, and can be produced chemically pure on a large scale. Of this, Dr. de Vrij has convinced himself thoroughly. From a medical standpoint, the advantage of the bisulphate lies also in the fact that it is seventy times more soluble in cold water than the basic salt.—*Nieuw Tijdsch. v. d. Pharm.*, 1884, 127.

[It may be that some reason like the foregoing accounts for the recent extensive purchase, for the U. S. Army, of a large quantity of bisulphate of quinine.—ED. AMER. DRUG.]

Sulphate of Cinchonidine.

PROF. J. MARTY, of Rennes, has studied the action of sulphate of cinchonidine and has come to the conclusion that it is of extreme variability of action in healthy and sick persons; and further, that it may easily provoke toxic manifestations in doses necessary to produce therapeutic results.

That sulphate of cinchonidine, when used in excess, acts as a poison is evidenced by a recent case reported by Dr. Williams, of New York, in which a dose of 160 grains was by mistake taken by a patient. The dose was followed by gradual collapse and death.

The Cultivation of Coffee in India.

THE cultivation of coffee is confined to Southern India, although attempts have been made to introduce the plant both into British Burma and into the Bengal District of Chittagong. The coffee tract may be roughly defined as a section of the landward slope of the Western Ghâts, extending from Kánara in the north to Travancore in the extreme south. This tract includes almost the whole of Coorg, the districts of Kádur and Hassan in Mysore, and the Nilgiri Hills, enlarged by the recent annexation of the Wainád. Within the last few years, the cultivation has extended to the Shevaroy Hills in Salem District, and to the Palm Hills in Madura. Unlike tea, coffee was not introduced into India by European enterprise, and even to the present day its cultivation is largely conducted by natives. The Malabar Coast has always enjoyed a direct commerce with Arabia, and yielded many converts to Islam. About 1560, one of these converts, Baba Budan, is said to have gone on a pilgrimage to Mecca, and to have brought back with him the coffee berry, which he planted on the hill range in Mysore still called after his name. According to local tradition, this happened about two centuries ago. The shrubs thus sown lived on, but the cultivation did not spread until the beginning of the present century. The state of Mysore and the Baba Budan range also witnessed the first opening of a coffee garden by an English planter about forty years ago. The success of this experiment led to the extension of coffee cultivation into the neighboring tract of Manjarabod, also in Mysore, and into the Wainad subdivision of the Madras District of Malabar. From 1840 to 1860, the enterprise made slow progress; but since the latter date, it has spread with great rapidity along the whole line of the western Ghâts, clearing away the primeval forest, and opening a new era of prosperity to the laboring classes. The following statistics show the area under coffee for the year 1877–78. In Mysore 128,438 acres, almost confined to the two districts of Hassan and Kadur; in Madras, 58,988 acres, chiefly in Malabar, the Nilgiris, and Salem; in Coorg, 45,150 acres: total, 232,576 acres, exclusive of Travancore. The average out-turn is estimated at about 3 cwts. per acre of mature plant. The total Indian exports (from Madras) in 1877 and 78 were 33,399,352 lbs., valued at £1,355,643, of which about one-half was consigned to the United Kingdom. In 1878–79, the exports amounted to 38,336,000 lbs., valued at £1,548,481.

Considerable judgment is required to select a suitable site for a coffee-garden, for the shrub will only thrive under special circumstances, which it is not very easy to anticipate beforehand. It is essential that the spot should be sheltered from the full force of the monsoon, and that the rainfall, though ample, should not be excessive. The most desirable elevation is between 2,500 and 3,500 feet above sea level. The climate must be warm and damp, conditions which are not conducive to the health of Europeans. Almost any kind of forest land will do, but the deeper the upper stratum of decomposed vegetable matter the better. The site chosen for a garden is first cleared with an axe of jungle and undergrowth, but sufficient timber trees should be left to furnish shade. In the month of December, the berries are sown in a nursery which has previously been dug, manured, weeded, and watered as carefully as a garden. Between June and August, the seedlings are planted out in pits dug in prepared ground at regular intervals; an operation which demands the utmost carefulness in order that the roots may not be injured. In the first year, weeding only is required; in the second year, the shrubs are "topped," to keep them at an average height of about three feet; in the third year, they commerce to bear, but it is not until the seventh or eighth year that the planter is rewarded by a full crop. The season for blossoming is March and April, when the entire shrub burgeons in a snowy expanse of flower, with a most delicate fragrance. Gentle showers or heavy mists at this season contribute greatly to the fecundity of the blossoms. The crop ripens in October and November. The berries are picked by hand, and collected in baskets to be "pulped" on the spot. This operation is performed by means of a revolving iron cylinder, fixed against a breast work at such an interval that only the "beans" proper pass through, while the husks are rejected. The beans are then left to ferment for about twenty-four hours, when their saccharine covering is washed off. After drying in the sun for six or eight days they are ready to be put in bags and despatched from the garden. But before being shipped, they have yet to be prepared for the home market. This is done at large coffee-works, to be found at the western parts and in the interior of Mysore. The berries are here "peeled" in an iron trough by broad iron wheels, worked by steam power; and afterwards winnowed, graded, and sorted for the market.

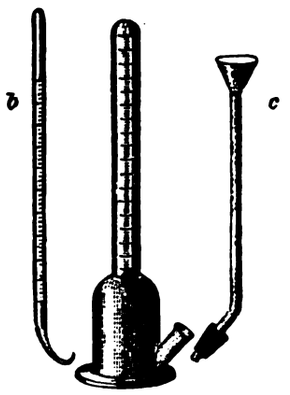
Blaud's Pills.

ACCORDING to the *Chemist and Druggist*, the best formula for making these pills is as follows:

Dried sulphate of iron, and carbonate of potassium, of each, 276 grains; powdered tragacanth, 30 grains; glycerin, 1 fluidrachm or as much more as may be required to make the mass rather soft at first. Make 144 pills.

UREA APPARATUS.

A MODIFIED form of apparatus for estimating urea by means of hypobromite of sodium has been described by W. H. Greene in the *Comptes Rendus* (97, 1,141). Its principal part is the glass vessel *a*, the lower portion of which, of a capacity of about 60 C.c., is provided with an oblique tubulure. Its upper portion is cylindrical, of a capacity of 20 to 25 C.c., and is graduated. When using the apparatus, a suitable quantity of the alkaline bromine solution is poured into the inverted vessel, the latter then turned, set into a dish in which the displaced liquid may run, and a measured quantity of the urine then introduced by means of the curved pipette *b*, the orifice of which should be so fine that only about 3 to 4 C.c. of urine can



flow from it in one minute. The resulting nitrogen collects in the upper part of the tube *a*. When the reaction is finished, the funnel-tube *c* is inserted into the tubulure and enough bromine solution poured into it until the level of the liquids in *a* and *c* is equal. From the amount of nitrogen then present the quantity of urea is calculated in the usual manner. In place of using the funnel-tube, the apparatus (*a*) may be immersed in water until the level of the latter is equal to the level of the inclosed liquid.

Beeswax and its Adulterations.

ACCORDING to Hübl (*Dingler's Polyt. Journ.*, 250, p. 338), the most reliable method of estimating the purity of beeswax is that proposed by Becker, and known as the saponification method.

The quantity of potassic hydrate required to saponify one gramme or 15.4 grains of pure beeswax varies from 97 to 107 milligrammes. Other kinds of wax and its substitutes require in some cases more and in others less of the alkali. This method would, however, lead to very erroneous conclusions if applied to a mixture of which some of the constituents have higher saponification numbers than beeswax and others lower, as one error would balance the other.

To avoid this, the quantity of alkali required to saponify the myricine is first ascertained, and then that required to saturate the free cerotic acid. In this way two numbers are obtained; and in an investigation of twenty samples of Austrian yellow beeswax, the author found these numbers stood to each other almost in the constant ratio of 1 to 3.70. Although this ratio cannot be considered as definitely established by so few experiments, it may serve as a guide in judging of the purity of beeswax.

The experiment is carried out as follows: Three or four grammes of the wax that has been melted in water are put in 20 C.c. of neutral 95 per cent alcohol, and warmed until the wax melts, when phenolphthaleine is added, and enough of an alcoholic solution of potash run in from a burette until on shaking it retains a faint but permanent red color. The burette used by the author is divided in 0.05 C.c. After adding 20 C.c. more of a half-normal potash solution, it is heated on a water bath for three-quarter hour. Then the uncombined excess of alkali is titrated with half-normal hydrochloric acid. The alcohol must be tested as to its reaction before using it, and carefully neutralized with the acid.

To saturate the free acid in 1 gramme of wax requires 19 to 21 milligrammes of potassic hydrate, while 73 to 76 milligrammes more are necessary to saponify the myricine ether. The lower numbers in the one usually occur with low numbers for the other, so that the proportions remain 1 to 3.6 or 1 to 3.8.

For comparison he gives the following numbers obtained with one gramme of the more common adulterants:

	To Neutralize the acid.	To Convert the ether.	Total for Saponification.	Ratio.
Japanese wax	20	200	220	10
Carnauba wax	4	75	79	19
Tallow	4	176	180	44
Stearic acid	195	0	195	$\frac{195}{195}$
Rosin	110	1.6	112	0.015
Paraffin	0	0	0	0
Ceresin	0	0	0	0
Yellow beeswax	20	75	95	3.75

The author deduces the following conclusion as the results of these investigations:

1. If the numbers obtained lie between these limits, 19 to 21, 73 to 76, 92 to 97, and 3.6 to .38 respectively, it may be assumed that the beeswax is pure, provided it also corresponds to beeswax in its physical properties.

2. If the saponification figures fall below 92, and yet the ratio is correct, it is adulterated with some neutral substance like paraffin.

3. If the ratio is above 3.8, it is very probable that Japanese or Carnauba wax or grease has been added.

4. If the ratio falls below 3.6, stearic acid or resin has been used as the adulterant.

GRIFFITH'S MICROSCOPE.

A MICROSCOPE stand with several novel and practical features is the invention of Mr. E. H. Griffith, of Fairport, N. Y. The upright post is made in two pieces, which screw together, and the upper section can be screwed into a table or other support when perfect stability is desired. The lower section forming the foot can be converted into a turn-table for mounting objects, by reversing it upon a pivot that is attached to the case, the balls which serve as feet when attached to microscope become handles for the turn-table. Another peculiarity is the fine adjustment. The milled head seen under the barrel of the microscope in the illustration, turns a rod which has a screw upon it toothing with a cog-wheel on the pivot of the coarse adjustment. There is a simple contrivance for throwing the fine adjustment in or out of gearing, but when in gear, the coarse adjustment cannot be moved independently of the fine adjustment. This is a pretty effectual contrivance for preventing a tyro from forcing the objective against the covering glass. There are other minor features of construction equally novel and practical. Altogether the instrument is well suited for botanical work and will be particularly appreciated by those who wish a compact and serviceable apparatus.

We have to thank Meyrowitz Bros., opticians, corner Fourth avenue and 23d street, N. Y., for the illustration and the opportunity for examining the instrument.

WASH-BOTTLE FOR LIQUIDS INSOLUBLE IN WATER.

AN ordinary wash-bottle is partly filled with the liquid to be used for washing, which should be insoluble or nearly so in water. From a suitable reservoir, a current of water is made to flow into the bottle, under more or less pressure. If the other liquid is heavier than water, it will remain below the latter (this is the condition illustrated in the cut); if lighter, it will float above, and in the latter case the delivery tube *A* will have to be drawn up until its internal outlet is flush with the bottom of the cork.—M. GOLDSTEIN, *Chem. Centralb.*

Hair Trituration.

THE well-known Professor Jaeger, "discoverer of the soul" and advocate of the wearing of woollen clothing exclusively, has "discovered" that the homœopathic attenuation of the human hair is a sovereign remedy for many ills that flesh is heir to, and has applied for a patent, in Austria, upon his "Haarduftkügelchen" (or "hair-odor-granules"). To the human female hair he assigns extraordinary powers. For instance, if it be administered in form of granules, with the food, it will promote appetite and invigorate the system, etc., etc.

To the objection made by the press, that the administration of such a remedy appears nauseous, the author replies: "The idea of disgust is removed by the high dilution. A whole hair in a plate of soup may be considered repulsive, but nobody will object to drink from the lake of Constance if he knows that *one* hair has fallen into it; and this is about the dilution attained in the granules."

Phosphorus Paste

Of great durability may be prepared in the following manner:

Nine Gm. of phosphorus are shaken with 90 Gm. of hot syrup until very finely divided. The mixture is poured, while still warm, into a pan containing 90 Gm. of fine wheat-flour, quickly agitated, and finally mixed with 60 Gm. of bone-black, 60 Gm. of water, and 120 Gm. of lard.—*Pharm. Zeit.*

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 8. WHOLE No. 122.

FRED'K A. CASTLE, M.D., - EDITOR.
CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

AUGUST, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00
SINGLE COPIES, - - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & CO., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

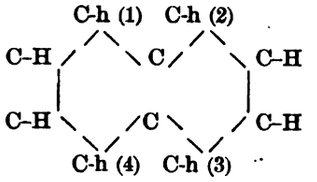
EDITORIAL.

Adulterated Mustard.

THE New York Board of Health has prosecuted a manufacturer of mustard whose product was found to consist of a large proportion of wheaten flour (or other starchy substance), some sulphate of calcium (probably as terra alba), about 25 per cent of mustard, and some [salt of] dinitronaphthol or Martius' yellow, as coloring matter. This latter substance being quite poisonous, the Board has acted wisely and promptly in pressing the charge.

Dinitronaphthol. The coloring matter mentioned in the preceding paragraph is that which is derived from α-naphthol (on this and β-naphthol see NEW REM., 1883, p. 91); β-naphthol also yields a dinitronaphthol of similar properties, but it has not found any practical employment as yet.

Dinitronaphthol (the alpha-α-variety) is α-naphthol, in which *two* hydrogen are replaced by *two* NO_2. Naphthalin, from which all these compounds are derived, may be represented as having the following structure, which shows two benzol-rings joined together:



If *one* of the hydrogens in positions 1, 2, 3, 4 (where *h* is printed) is replaced by hydroxyl (HO), alpha-naphthol is generated. Beta-naphthol would be produced if one of the other hydrogens (H) were thus replaced. If, in the alpha-naphthol, two additional hydrogens are replaced, each by NO_2, we obtain the *di-nitro-naphthol* (the alpha variety, of course).

Dinitronaphthol resembles picric acid and is quite poisonous. It is soluble only with difficulty, and imparts to solvents a light-yellow color. In its nature it is a strong acid. With bases it forms more or less soluble salts: the sodium salt* is in form of reddish-yellow needles, and is easily soluble in water.

The calcium salt† is but little soluble. Both are sold in the market as a yellow crystalline powder for dyeing yellow. They are known as Martius' yellow, Manchester yellow, Jaune d'or, saffron-yellow, etc.

They dye wool and silk without mordants, from light lemon to deep gold-yellow, which is remarkable by its brilliant pure yellow tint, while picric acid always yields greenish tints.

THE withdrawal of the wholesale druggists of this city from their agreement with the N. Y. Druggists' Union, leaves the Campion plan the only regulation in force to govern the sale of proprietary articles. This measure of relief is said to be working very satisfactorily wherever it has been undertaken, if we except the cities of New York, Boston, and Philadelphia, where its success is but partial, owing to the fact that these are the places where rate-cutting has become the most troublesome and where the obstacles to reform are naturally the most difficult to overcome.

The one thing which is essential to the success of any scheme, however well it may be planned in other respects, is *local and national organization*, and as the time is rapidly approaching for the meeting of the National Retail Drug Association at Milwaukee, we hope that every retail pharmacist, who has not already done so, will *at once* send his name and dollar to the Secretary, Mr. E. A. Sayre, 416 Myrtle avenue, Brooklyn, N. Y.

The form of application for membership is as follows:

Approving of the objects of the National Retail Druggists' Association, I am desirous of joining it, and hereby signify my approval of its Constitution and By-Laws, and subscribe to the same.

I certify that I am a retail druggist engaged in business on my own account.

Name.....
Address.....

We cannot understand why the national organization should have gained no more than five or six thousand members in its first year of existence. It has been warmly indorsed by every pharmaceutical journal that identifies itself at all with trade interests. So far as we are aware, it has been officially approved by every association of pharmacists which has had the subject before it, and there is hardly a prominent retail druggist in the country who has not spoken or exerted himself in its favor, and yet instead of embracing twenty thousand members, the number is only about 2,500.

* $C_{10}H_5(NO_2)_2ONa \cdot H_2O$
† $[C_{10}H_5(NO_2)O]_2Ca \cdot 6H_2O$

A BEAR once entered unceremoniously a frontier cabin, to the dismay of the man and wife, who were the regular occupants. The man was not long in finding a retreat in the loft above and was enthusiastic in his encouragement of his wife, who seized the poker and drove the bear out. While he was in the loft the man's exclamation was, "Give it to him, Sally!" but when the bear was gone, the door safely barred, and he had come down from his perch, he rubbed his hands, and with glee exclaimed, "Didn't *we* give it to him, Sally?" Some of our friends who are waiting to see what the result will be of all this hubbub about a national organization of the retail druggists before they join it, may supply the moral.

IT is gratifying to learn from the discussion that occurred at a recent meeting of the New York Druggists' Union that the New York and Brooklyn Formulary is receiving the approval of many physicians, and that the work is in great demand, not only in the two cities for which it was primarily intended, but likewise in many parts of the United States. An effort will soon be made, so it is said, to introduce the preparations to the immediate notice of the members of the local medical societies.

IT seems that the suit against Mr. G. Miller, of this city, for his failure to procure a license from the Fire Department to keep combustibles, has been decided against him. The law is likely, therefore, to be enforced, and pharmacists would do well to procure the necessary license without delay. The fee is two dollars.

MR. HENRY C. SCHRANK, the local Secretary of the American Pharmaceutical Association at Milwaukee, kindly informs us that, on the certificate of the *Local Secretary*, the Chi., Mil. & St. Paul, the Chi. & N. W., the Mil. and Lake Shore, and the Wis. Cent. railroads will issue round tickets from Chicago to Milwaukee for one and one-fifth the regular fare, and that the Goodrich steamers leave Chicago every morning and evening, arriving the next evening and morning; the fare bring $1.50 or $2.50 for the round trip, including berths.

WE have long since called attention to the danger to health arising from the use of badly constructed apparatus for dispensing carbonated beverages. The subject has, indeed, been often referred to in pharmaceutical journals, but still there is apparently too little attention paid to this matter by some, for the subject has been deemed of sufficient importance to be investigated by the Boards of Health of New York and Brooklyn. Every man who dispenses "soda" will do well to assure himself by examination that his apparatus does not supply a syrup of verdigris with every drink.

Synopsis of Albuminoids.

BY DR. C. FR. W. KRUKENBERG.*

Native Albuminoids.

THIS class comprises those albuminoid substances which are found, as such, in the tissues and liquids of the living animal body.

A. ALBUMINS.

These are soluble even in highly dilute saline solutions, but insoluble in water in absence of salts. Are not precipitated by very dilute acids or very dilute solutions of the alkali-carbonates, nor by chloride of sodium or sulphate of magnesium. But are precipitated by adding sodium sulphate to their solution saturated at 30° C. with magnesium sulphate. By boiling they separate and are decomposed.

A. Serum-Albumin (C 53.05, H 6.85, N 16.04, S 1.8, O 22.21%) coagulates, in about 1% solution, as free as possible from salts, already at 50° C. The presence of serum-globulin and of salts, however, raises the coagulating point to 72°–75° C.

1. In polarized light, (α) D = −62.6 to −64.6.†
2. Its feebly saline solution is not coagulated by ether.
3. Is precipitated by alcohol, easily soluble in concentrated hydrochloric acid. From this solution, water quickly precipitates acid-albumin.
4. When precipitated or coagulated, is easily soluble in strong nitric acid.

b. Egg-Albumin (C 52.25, H 6.9, N 15.25, S 1.93, O 23.67%) coagulates at about 70° C.

1. In polarized light, (α) D= −37.8°.
2. Is precipitated by ether.
3. When precipitated by ether, is not readily soluble in strong hydrochloric acid. In this solution, water produces a precipitate very difficultly soluble in water.
4. When coagulated, difficultly soluble in strong nitric acid.

c. Muscle-Albumin. Coagulates, in neutral solution, at 47° C.

B. GLOBULINS.

Soluble in dilute solutions of neutral alkali salts (for instance in 10% sodium chloride). Separates from these solutions 1. by heat, 2. by strong dilution with water, 3. by saturation with neutral alkali salts.

a. Myosin. Coagulates at 55° to 60° C.

b. Serum-Globulin (C 52.71, H 7.01, N 15.85, S 1.11, O 23.32%). In polarized light, (α) D = − 47.8°. Coagulates at 69° to 76° C.

C. FIBRINOGENS.

Globulin-like bodies, differing much among each other in their coagulation points. In order to separate all fibrinogens from their faintly saline solutions, and to convert them thereby into fibrin, only the action of certain enzymes or ferments is necessary.

Fibrinogen from the Blood of Mammals.

(C 52.93, H 6.90, N 16.66, S 1.25, O 22.26%.) Coagulates in dilute saline solutions at 55°–56° C. Splits at 58°–60° C. into two albuminoids, one of which (C 52.46, H 6.84, N 16.93, S 1.24 O 22.53%) separates, and is insoluble in water; while the other (C 52.84, H 6.92, N 16.25, S 1.03, O 22.96%) remains in solution.

Albuminates.

This name is applied to those albuminoid bodies which are produced from natural ones by heat, chemical reagents, or by enzymes or ferments.

A. COAGULATED ALBUMINS.

Insoluble in water and in neutral saline solutions, in which they swell up but slightly. But little soluble in solution of soda or in dilute acids.

B. ACID ALBUMINS

Are produced from native albuminoids (also from mucin) by the action of diluted or stronger acids, or by treatment with different salts of heavy metals (as ferric chloride, mercuric nitrate, platinic chloride). Do not coagulate on heating; when carefully neutralized, they are precipitated, and, if freshly prec., are easily soluble in very dilute hydrochloric acid or soda solution. Caustic alkalies convert them into alkali albuminates.

A sharp distinction of the single acid albumins (syntonin, antialbumate, antialbumide, etc.) is at present not yet feasible.

C. ALKALI ALBUMINATES.

If native albumin is treated with alkali, instead of with acid, it is changed in a similar manner. If the change was complete, the alkaline solution does not coagulate on heating. On neutralizing, the albuminoid is completely precipitated. The precipitate, insoluble in water and in neutral solution of chloride of sodium, is easily soluble in dilute acids or alkalies.

In fact, acid albuminates and alkali albuminates are nothing else but solutions of one and the same substance in acids or in alkalies.

D. ALBUMINATES ALTERED BY ENZYMES OR FERMENTS.

a. Fibrins (derivatives of fibrinogen). Fibrin from the blood of mammals (C 52.68, H 6.83, N 16.91, S 1.10, O 22.48%) is insoluble in water and in saline solutions, swells up to a jelly in dilute acids, becomes milky white and brittle when heated to 75° C., as well as by the action of alcohol.

b. Albumins altered by the action of enzymes.

1. *Antialbuminose* is similar in its action to the acid albumins.
2. *Hemialbuminose* is a transition link between albuminoids and peptones.
3. *Peptones* do not respond to some of the albuminoid reactions, and differ from albuminoids also by being diffusible. They retain water with energy, and are soluble in it in all proportions.

On Cochineal Coloring.

WE take the following from a paper on Cochineal and Cochineal Coloring published in the *Chemist and Druggist* of May 15th.

An aqueous infusion (prepared with heat) of about one part cochineal to ten or fifteen of water, and concentrated by evaporation to a proper degree, will answer for the majority of pharmaceutical preparations, as Parrish's syrup, much better than any other colorings into which are introduced chemical compounds which often produce unexpected and generally vexatious complications. For most purposes, however, such a coloring is not bright enough, and recourse is, therefore, had to various means to produce a more brilliant preparation. Practically, by whatever means effected, the resulting liquor is merely a solution of carmine, and the method employed to produce it will probably be determined more by the purposes for which the coloring is required, or by such considerations as convenience or expense, than from any great difference in the resulting product.

Consequently, in making cochineal coloring, we may either proceed to make it from the carmine direct, or we may make a soluble carmine from the cochineal itself. The former is accomplished generally by means of the solubility of carmine in ammonia, and all that is necessary is to digest the carmine in ammonia water sufficient to effect solution, diluting the resulting solution with water, and adding some preserving media, such as spirit or sugar, etc. An old form for a coloring of this kind, and one which gives as good results as can possibly be obtained working in this direction, is as follows:

Carmine, pure, 1 oz.; solution of ammonia, 6 oz. or q. s.; macerate for a few days, with frequent agitation, and, when dissolved, heat gently so as to drive off the excess of ammonia without reprecipitating the carmine. Dilute this solution with water, and add sugar 1¼ lbs.; rectified spirit, 4 oz.; water sufficient to make the whole measure 40 oz. The two main objections to all such coloring solutions are, first, the cost of production, it being quite apparent that the initiatory process of producing such a valuable pigment as carmine adds considerably to the expense of the finished product; and, second, the action that all acids have upon them in shortly reprecipitating the carmine.

Proceeding from the crude cochineal, no process is better known, or has been longer in use, than that of digesting with the aid of heat equal parts of cochineal, carbonate of potassium, alum, and cream of tartar with about eight parts of water. The process is so well known that we do not require to give it in full, but, inasmuch as complaints are not infrequent (and this not without cause, as we will immediately show) of difficulties in working the process, as well as in keeping the product, we may be excused for touching upon several details bearing upon these points.

Alum, it is well known, is decomposed in presence of alkaline carbonates, the hydrate being thrown down with evolution of carbonic acid. When, therefore, a solution of cochineal is treated with carbonate of potassium and alum, the hydrate of alumina is liberated and seizes upon the coloring matter, for which it has a powerful affinity, and would ultimately throw it down as an insoluble compound, known commercially as carmine lake, but which might chemically be described as impure aluminum carminate. On the addition, however, of the cream of tartar, brisk effervescence again takes place with resolution of the coloring principle, so that the mixture now contains aluminum carminate in solution, plus certain salts, the products of decomposition. So much for the rationale of the process, without encumbering the explanation with too much chemistry. Now, if instead of working with cochineal, we simply take equal parts of the three salts mentioned, and dissolve them in the proportion of water generally taken in this formula for cochineal coloring, we will find that the resulting liquid, after heating to drive of all carbonic acid, will be feebly alkaline, and, further, that it will be supersaturated with the resulting salts.

Consequently a slight excess of cream of tartar, a circumstance which might happen through carelessness in weighing, or a reduction in the quantity of carbonate of potassium, through excess of moisture or other causes which might be mentioned, will materially affect the ultimate result, so far as an alkaline or acid reaction is concerned. Not only so, but the liquid being supersaturated, will necessarily begin to deposit on cooling, and will continue to deposit with decreasing temperature. The first observation here made, applied to cochineal coloring, affects the shade and depth of col-

---

*Translated and published, with permission of the author, from his recent work: *Grundriss der Medicinisch-Chemischen Analyse.* (Outlines of Medico-Chemical Analysis.) 8vo. Heidelberg, 1884.

This brief synopsis will be of use to many of our readers interested in digestive ferments (pepsin, etc.), or in testing for the presence of albuminoids.

It is only a portion of the original table; the remainder, which treats of *proteids*, being for the present omitted.

† For an explanation of this term, see NEW REM., 1881, 166.

or, etc., of the preparation, while the second observation affects its permanency, the precipitation from the supersated solution of necessity carrying very much of the coloring principle along with it.

[The author next speaks of the necessity of adding some preserving agent, and then quotes the process for preparing cochineal coloring proposed by R. Rother in 1880, with remarks of his own, as follows:]

The process is, shortly, as follows: One part of cochineal is macerated for two days with an eighth part of hydrochloric acid, a fourth part of chloride of sodium, and four parts of water. After being occasionally stirred, the mixture is ultimately decanted. The residue is then treated a second time in the same manner and for the same length of time with plain water, and a third time with the same quantity of water, to which has been added one part of chloride of sodium. The marc is then strongly pressed, and the several macerates mixed and allowed to stand until any sediment has subsided. To the clear liquid is added one-fourth part of alum, and when dissolved, one-third part solution of ammonia (sixteen per cent). The resulting precipitate is thoroughly washed with water, and finally dissolved in a solution of citrate of sodium, made by dissolving one-eighth part citric acid in four parts water, and adding, with the aid of a gentle heat, carbonate of sodium to saturation. The whole is made to measure three and a half parts, and to this one-half part stronger alcohol is added "to obviate septic degeneration."

. . . . . .

Quite unconscious that Mr. Rother had been working in the same direction, we had made a series of experiments, with the view of effecting solution of the impure aluminum carminate of the old process by means of the most suitable vegetable acid. In doing this, we found that citric acid was in every respect the best agent, and in substituting a proper proportion of this acid for the cream of tartar of the old process, we found a product could be obtained at once permanent and satisfactory. We give the process with some degree of confidence as the simplest and best that has yet been given for cochineal coloring: Finest silver-grain cochineal, 1 oz.; carbonate of potassium, 1 oz.; potash alum, 1 oz.; citric acid, ½ oz.; sugar, 4 oz.; water sufficient. Boil the cochineal bruised in a glass or copper vessel of suitable capacity in 8 oz. water, to which the carbonate of potassium has been added. Mix loosely the potash alum and citric acid in powder, add gradually to the boiling liquid, and continue to boil until effervescence has entirely ceased. While still hot filter on to the sugar, and wash the filter with hot water sufficient to make the whole measure 12 oz. This gives a beautiful and permanent crimson with a slightly alkaline reaction; but should a darker red be required, the citric acid may be increased by one-third.

Manaca in Rheumatism.

DR. C. M. CAULDWELL reports having had good success in the treatment of certain forms of rheumatism by fluid extract of manaca.

The effect on man, in health, of the drug—as produced by doses of twenty drops of the fluid extract, administered five times daily for a week—was merely an increase of appetite and a "valerian-like" odor of the urine.

The most satisfactory results were obtained in subacute rheumatism, in which there was little or no rise in temperature.—After *Med. Record.*

Preparation of Crystallized Colchicin.

AFTER Pelletier and Caventou, who first isolated an active principle from colchicum, which they, however, mistook for veratrine, various chemists have investigated the subject.

In Germany, Geiger and Hesse reported having obtained a crystallized substance, the properties of which are, however, very different from that below described.

Later, Oberlin reported that he could never obtain a crystalline "colchicine," even by Geiger and Hesse's process, but that he had extracted from the colchicine a neutral substance, crystallizing with ease, which he termed *colchiceine.*

More recently, Ludwig and Stabler have obtained the same results as Oberlin.

In view of these contradictory statements, a new investigation was undertaken (by the author), and it was found that a "crystalline colchicine" could be prepared by the following process:

Thirty-five kilos of colchicum seed are exhausted with one hundred kilos of ninety-six per cent alcohol. The filtered percolate is deprived of its alcohol by distillation; the remaining extract is agitated several times with its own volume of a five-per cent solution of tartaric acid which separates fatty and resinous substances, while the colchicin passes over into the acid solution.

The latter is decanted, filtered, and agitated with an excess of chloroform which dissolves out the active principle from the acid solution, *without previous addition of an alkali.* On evaporation, crystals are obtained which are impregnated with coloring matter.

These crystals are redissolved in a mixture of equal parts of chloroform, alcohol, and benzin. On a spontaneous evaporation, crystalline colchicin is deposited, which is purified by several similar manipulations.

This method yields about 3 grammes of active principle per kilogramme (that is 0.3 per cent). Colchicum bulb yields only 0.4 grammes per kilo (or 0.04 per cent).

Properties of crystallized colchicin.—The latter appears in form of colorless prismatic groups or masses; it is very bitter, turns litmus paper faint blue, is but little soluble in water, glycerin, or ether, but is soluble in alcohol in all proportions, also in benzin and chloroform.

It is hydrated and melts at 93° C. (199.4° F.); when dried at 100° C. its melting point is at 163 C. (325.4° F.). It is combustible without residue, and contains nitrogen. With certain organic acids it forms compounds, but in contact with others, more energetic, organic, or with mineral waters, it is decomposed.

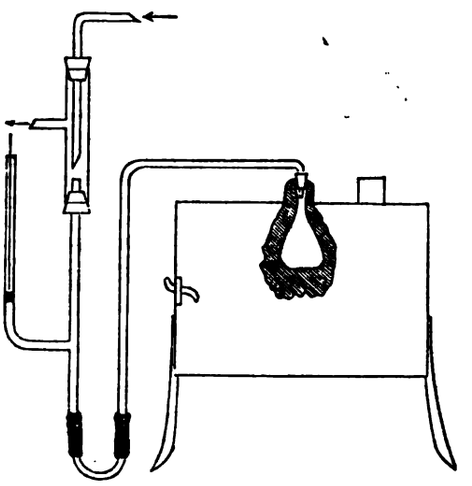
Its solution does not affect Fehling's reagent, except after it has been boiled for a long time with diluted sulphuric acid.

This latter characteristic, taken together with the fact that it forms salts, establishes a resemblance between colchicin and solanine; like the latter [?], the former is an alkali-glucoside.

Reactions. Strong or dilute mineral acids dissolve colchicin and color it lemon-yellow. Nitric acid imparts to it a transient violet color. Potash and soda precipitate its solutions, while ammonia produces no reaction. Tannin causes a white precipitate soluble on heating; platinic chloride causes an orange-yellow, iodine-water a kermes-red, iodide of mercury and potassium a yellow, and iodized iodide of potassium a maroon-yellow precipitate.

[This description will be followed by further statements when the author will have completed further experiments. Among other matters, it will have to be ascertained what relation there exists between this crystalline colchicin and Oberlin's colchiceine.]

According to the preliminary experiments of Dr. Laborde, the activity of the crystalline colchicin manifests itself only in comparatively large doses. For rabbits weighing about 450 grammes, the physiological dose is 0.02 to 0.03 Gm. (nearly ⅓ to ½ grain), and the poisonous dose 0.06 Gm. (nearly 1 grain).—A. HONDÈS, *Comptes Rend.*, 1884, 1,444.



WILSON'S THERMO-REGULATOR.

To maintain a constant temperature, Harold B. Wilson devised the arrangement here illustrated, which, though not new in principle, at least has the merit of requiring only ordinary laboratory fittings. The empty flask, which is placed inside the water or air bath, is to be either larger or smaller, according as lower or a higher temperature is to be kept near a constant average. It is connected, air-tight, with a U-tube, the larger portion of which is filled with mercury. Instead of using a continuous glass tube bent at the proper place in the flame, it is better to use straight tubing for the longer pieces, and to attach a short U-piece with stout rubber joints.

When the air inside of the flask becomes expanded, it depresses the mercury in the inner, and raises it in the outer limb, until it cuts off the supply of gas, which passes in the direction of the arrows.

The outer tube bears a lateral branch, into which a piston, made of a knitting needle and a disc of leather, fits. By pushing this down a certain distance, or by raising it up, so as to draw some of the mercury over into the branch, the temperature at which the mercury would otherwise cut off the gas may be varied at any time.—*Zeitsch. f. Anal. Chem.*, 1884, 192.

Liquor Gutta-Perchæ and Chrysarobin.

A 5-per-cent solution of chrysarobin in a solution of gutta-percha is a favorite application for chronic eczema. Auspitz uses a ten-per-cent solution for psoriasis.

[Dr. Morell McKenzie, of London, uses, with success, for such cases a drop or two of nitric acid in a glass of cold water, to be taken in swallows and at short intervals.—ED. AM. DRUG.]

Oil of Turpentine as Antidote for Phosphorus.

HAGER has recently again called attention to the observations of Koehler, who found that it is only the oxygenated portion of *crude* oil of turpentine which enters into combination with phosphorous acid. Since this portion is entirely absent in the rectified oil, it follows that the *crude* oil alone can be regarded as an antidote to phosphorus poisoning.—*Pharm. Centralh.*

Naphthol.

NAPHTHOL is produced from naphthalin ($C_{10}H_8$)* by a substitution of one of the hydrogens by one molecule of hydroxyl (O.H.). According to the position of the hydrogen, two different naphthols are obtained—α naphthol, and β naphthol. The β naphthol ($C_{10}H_7$-O.H) is the one spoken of. The method of its production consists of substitutions by means of strong sulphuric acid at certain temperatures, and melting the monosulphated compound with sodium hydrate, the ordinary dry caustic soda. According to the different temperature employed, either α or β naphthol is produced. They are usually purified by distillation, and brought to market as crystalline masses of a reddish color and a disagreeable and pungent odor. The naphthol β crystallizes in scale-like clino-rhomboidic laminæ from watery solutions. It represents clino-rhomboidic prisms in a molten state. It dissolves in 75 parts of boiling water, and in 520 parts of water at 60° F. It readily dissolves in alcohol, ether, and chloroform. An aqueous solution is colored yellow by chloride of lime and by heating this solution, yellow flakes separate. It melts at 122° C., but a mixture of both naphthols melts at a lower temperature than each alone. Compounds with alkaline metals and ammonia, and alkaline earths are not stable and separate easily either by evaporation or in contact with carbolic acid. The naphthols stand in the same relation to naphthaline as phenol to benzol, and the cresols to toluol.

The crude article contains sulphur and sulphurous acid. The sublimates thereof yield sulphuretted hydrogen, thio-naphtholes, carbolic and cresylic acid, etc., to which it owes its odor. This can be avoided by passing a rapid current of steam through its aqueous solution. The purified naphthol may be then obtained by sublimation, in elegant white crystals.

Its power as an antiseptic and disinfectant was shown by the addition of the drug to 480 parts of urine, which it kept perfectly sweet for upwards of six months, at a varying summer temperature. A similar result was shown by a solution of naphthol in 520 parts of water in which meat was immersed. Putrid solutions lost their odor in twenty-eight hours after the addition of naphthol.

The naphthol, in the form of soap, is valuable for removing the odors of putrefaction from hands and clothes. It is also a very active parasiticide. Naphthol, evaporated by heat, is especially serviceable as a deodorizer in sick-rooms, hospitals, and dissecting rooms.

The drug was taken internally by the writer and two friends, in full doses and continuously for a week, with no untoward symptoms. The symptoms were first heartburn, followed by vertigo, buzzing in the ears, and other symptoms of cerebral hyperæmia. It softened the evacuations; one case had slight diarrhœa. The initial dose was from a quarter of a grain every two hours, pushed to five grains twice daily. It had no effect on pulse or temperature; or the urine, except traces of the naphthol compounds were found in the last on analysis. It is thus proved that the purified odorless naphthol is not a toxic agent, and does not justify the apprehensions of those foreign observers who have recorded various effects of toxæmia produced by the use of the crude drug.

Therapeutically, it will be found of value in scabies, psoriasis, eczema, etc., in which it allays the itching and lessens the infiltration. In wounds and indolent ulcers, it is primarily a detergent and deodorant. It may be used in leucorrhœa and uterine cancer, in aqueous injections, containing half a grain to the ounce. It is a most useful gargle in throat affections, especially if diphtheritic. Its greatest value was found in its disinfectant action on the evacuations of fever patients. It removes the fœtid odor of the feet, when dusted on the shoes and stockings in combination with talcum or starch. In all ointments (1–10 grains to ʒi.) it not only preserves the unguent from decomposition, but exercises an antiseptic action on the parts and the exudation therefrom.

It has the advantage over carbolic acid in being cheaper, odorless (the purified form), and is of far greater efficacy as an antiseptic, and a smaller amount is sufficient.—DR. J. V. SHOEMAKER, in *Journal Amer. Med. Assoc.* (No. 17, p. 501).

* See NEW REMEDIES, 1883, 91.

New Process for Preserving Meat.

MR. RICHARD JONES, who has for many years devoted his attention to the preservation of meat, has now adopted a new process. The principle consists in the injection of a fluid preparation of boracic acid into the blood of the animal immediately after it has been stunned, and before its heart has ceased to beat; the whole operation, including the removal of the blood and chemical fluid from the body of the animal, only taking a few minutes. The quantity of boracic acid used is very small, and that little is almost immediately drawn out again with the blood. The preservation of the flesh is said to be thoroughly effected; the quantity of the chemical left in the flesh must therefore be very small, and can scarcely be injurious to the human system; for, as Professor Barff has proved by experiment, living animals, either of the human or other species, do not seem to be injured in any way by the consumption of it. A demonstration of the effects of the process was given in April at the Adelphi Hotel, London, when the joints cut from a sheep that had been hanging for more than seven weeks at the house of the Society of Arts were cooked in various ways, and those present agreed that the meat was equal to ordinary butcher's meat.—*Scient. Amer.*

The Liquefaction of Hydrogen.

M. OLSZEWSKI recently stated, in the *Comptes Rendus*, that he has liquefied hydrogen by the aid of liquid nitrogen; his previous use of liquid oxygen being unsatisfactory. The nitrogen was compressed to sixty atmospheres, and cooled in a glass tube to −142° C. for a considerable time, by the aid of ethylene evaporating in a vacuum; and in this way was liquefied. The pressure being diminished to thirty-five atmospheres, the nitrogen began to boil with such rapidity that it seemed white and opaque in the upper portions of the tube containing it. If the pressure was maintained at this point the nitrogen ceased to boil; wholly clarified itself; and showed a very pronounced meniscus. The liquid nitrogen, amounting to from three to four cubic centimeters in volume, preserved this condition for a considerable time, slowly evaporating, and producing an increase of pressure in the apparatus. At length its meniscus became less and less distinct; and it finished by completely vanishing when the pressure gauge stood at 39.2 atmospheres; which is, therefore, the critical pressure of nitrogen, when the liquid nitrogen was reduced to the pressure of one atmosphere, it at first rapidly evaporated; but afterward, when scarcely half of it was left, the evaporation slackened, but the liquid itself remained completely transparent, without freezing. The nitrogen did not freeze, even when evaporated under a vacuum; but it was very different when hydrogen contained in a glass tube of about 4.5 millimeters internal diameter was plunged in the liquid. While the nitrogen evaporated in the vacuum, and the pressure of the hydrogen fell from one hundred and sixty to forty atmospheres, the hydrogen was observed to condense into a colorless transparent liquid, running down the sides of the tube. A moment later the exterior surface of the tube was covered with an opaque white coating of the portion surrounded by the gaseous nitrogen, and with a semi-transparent ice on the portion dipping in the liquid nitrogen. This ice and the white coating were evidently due to the nitrogen which thus solidified upon the sides of the tube, prodigiously cooled by the ebullition of the contained hydrogen. The insufficient quantity of liquid nitrogen has not hitherto permitted M. Olszewski to observe the meniscus and critical pressure of liquid hydrogen, but he is convinced that nitrogen, in considerable quantity, boiling in a vacuum, will furnish the only means of liquefying hydrogen to its static condition.

Vesicating Liquids.

AT the meeting of the Société de Médecine Pratique on February 21st, M. Delthil presented a vesicating liquid composed of a solution of cantharides in acetic acid, which offers several advantages over the ordinary plaster masses. It is applied in coats by means of a brush. The first coat produces a rubefacient effect, the second a slight vesication, the third ordinary vesication, and the fourth very great vesication. The advantages of this liquid are numerous: 1st, its action is limited and fixed: 2d, its liquid state enables one to apply it to all parts of the body where its employment may be necessary; 3d, it is more acceptable to patients, and its action is perhaps less painful than that of ordinary vesicants; 4th, it acts more quickly than plasters; 5th, the various effects may be obtained by adding to the number of coats; 6th, its advantages are especially seen when used on children. The action of the liquid may be limited to the desired space by cutting an opening in a piece of cere cloth, as in the application of Vienna paste. Before applying it, the surface of the skin should be washed in warm water, and then rubbed dry and red; after applying the desired number of coats, the spot is covered with wadding.

The Adulteration of Fish Oils.

AT a conference recently held at Vienna, Herr Rössler gave some interesting particulars as to the most recent adulterations of fish oils and the methods of discovering them. It would seem that brown cod-liver oil and white Bergen oil are adulterated with Newfoundland oil. Real cod-liver oil produces with aqua regia (2 parts of hydrochloric acid and 1 part of nitric acid) a liniment of a dark greenish-yellow tinge, which, after half an hour, becomes brown and retains that color. Sea-calf oil, and even a mixture of that oil in equal quantity with cod-liver oil, gives a very light-yellow liniment. This reaction is said to be very characteristic and sufficiently exact for practical purposes.

New Kind of Candles.

M. TRIBALLAT has invented a candle composed of products known as white fatty acids extracted from palm-oil, or other oils. The wicks of these candles do not vary in form from those of ordinary candles, but they are only one-third of the usual size. The light is said to be white and intense. The candles burn a long time, and it is claimed for them that they are both cleanly and economical in use.

A New Reagent for Sodium.

A NEW reagent showing the presence of sodium and sodium salts is described by Dr. Hager (*Pharm. Centralh.*, June 19th, p. 291) which, though subject to several limitations as to its applicability, would seem to give more satisfactory qualitative indications than the flame test in such cases as the examination of potassium carbonate or hydrate. It consists of a solution of *potassio-stannous chloride*, made by dissolving five parts of crystals of chloride of tin in ten parts of distilled water and adding sufficient potash solution, sp. gr. 1.145, to render it nearly, but not quite clear; after standing an hour, five parts more of potash solution and fifteen of water are added, the solution is again allowed to stand for some hours and then filtered. The solution to be examined, if acid, should be made faintly alkaline with pure potash solution, or if decidedly alkaline, neutralized with hydrochloric acid, and any salts of the earth metals should be separated by pure potassium carbonate. Boric acid also interferes with the reaction, and a solution containing sodium borate requires to be mixed with potassium chloride or sulphate before adding the tin reagent. In the presence of any of the salts of sodium the reagent gives, after two or three minutes, a white precipitate or turbidity, even with only minute traces, a fact that should be remembered in preparing it, as caustic potash is seldom quite free from soda. Lithium and ammonium salts seem to behave toward this reagent similarly to sodium salts, except that the reaction with lithium is not influenced by the presence of a borate. As alcohol in the proportion of eight per cent also gives a white turbidity with potassio-stannous chloride, its presence would require to be excluded.—Abstract in *Pharm. Journ.*

Volumetric Determination of Free Nitric Acid.

PROF. A. LONGI recommends to use a volumetric solution prepared by dissolving 40 Gm. of sulphate of tin and potassium in 800 Gm. of diluted sulphuric acid (1 part of acid and 1 part of water), with addition of a little concentrated hydrochloric acid. This solution is standardized by means of ferric chloride and permanganate, and mixed with more diluted sulphuric acid, so that the final solution may contain 11.8 Gm. of tin per litre. This constitutes a decinormal solution.

The liquid containing the free nitric acid is colored blue by a drop of solution of diphenylamine in sulphuric acid, and then titrated with the above test solution, from a burette divided into $\frac{1}{10}$ C.c., until the solution is colorless.—*Gaz. Chim. Ital.*, 13, 482.

Balao or Malapayo Oil.

A RESINOUS oil, baláo or malapájo, is found in the Philippine Islands Sámar and Albáy, probably also in other provinces. It is obtained from a Dipterocarpus* (apiton), one of the loftiest trees of the forest, by cutting in the trunk a wide hole, half a foot deep, hollowed out into the form of a basin, and from time to time lighting a fire in it so as to free the channels through which it flows of obstructions. The oil thus drained is collected daily and comes into commerce without any further preparation. Its chief application is in the preservation of iron in ship-building. Nails dipped in the oil of the baláo, before being driven in, will, as I have been assured by credible individuals, defy the action of rust for ten years; but it is principally used as a varnish for ships which are painted with it both within and without, and it also protects wood against termites and other insects. The baláo is sold in Albáy at four reals for the tinaja of ten gantas (the litre at eight pence). A cement formed by the mixture of burnt lime, gum elemi, and cocoa-nut oil, in such proportions as to form a thick paste, before application, is used for the protection of the bottoms of ships, and the coating is said to last a year.—F. JAGOR, *Travels in the Philippines*, p. 289.

* If the source of the oil is really a dipterocarpous tree, it may perhaps be *Dipterocarpus trinervis* Bl., which is found in the Philippines. The resinous oil would then be a species of Gurjun balsam, although in its uses it coincides with the wood oil of China which is derived from a euphorbiaceous tree, namely, *Elæococca Vernicia* Spreng.—Compare Pharmacographia (2), p. 91.

"Lederine," which would correspond to English "leatherine," is a new coloring matter invented and prepared by Saltzer and Voight in Oker (in the Harz, Germany) and which promises to become of considerable importance. It is said to be free from arsenic and metals and to be very intense and lasting. A yellow and an orange variety are manufactured.

This coloring matter is soluble in *fats* and *oils*, and may be used for coloring pomades, oil, wax, resin, varnish, petroleum ointments, etc. The color is first mixed with a little of the fatty matter and then incorporated with the rest.

Percentage of Caffeine in Roasted Coffee.

ACCORDING to a recent report in the *Allg. Kaffee-Zeitung* (Rotterdam), the percentage of caffeine in different varieties of roasted coffee is, on an average, as follows:

Brazil (Amarello)	3.64
Martinique	3.58
Alexandria	2.52
Java	2.52
Mocha	2.12
Cayenne	2.00

Rancid Castor Oil.

RANCID castor oil can easily be purified in the following manner:—100 lb. of the rancid oil is heated 86 deg. Fahr. in a boiler; then a mixture of $\frac{1}{2}$ lb. of alcohol (96 per cent) and $\frac{1}{4}$ lb. sulphuric acid is added and crutched in. The mixture is then allowed to settle and the oil is drawn off from the impurities which have settled at the bottom. The oil is again washed with water by boiling it uninterruptedly for at least half an hour. The mixture is then allowed to rest until the oil has collected on the surface, when it is carefully removed. Rancid oil after being treated in this way is again fit for use in the manufacture of transparent soap.

Simple Process for Purifying Oils.

ACCORDING to the *Corps Gras Industriels*, oils which hold in solution fatty acids or other substances may be easily purified by the process of Viallis Frères, in being filtered through sawdust impregnated with a solution of soda. If a certain quantity of oil has to be purified, barrels sawn in two can be used, the bottoms of which are pierced with holes. In the bottom is placed a layer of flannel on which a layer of sawdust is placed, six or eight inches in thickness. If a colorless oil is desired, a thin layer of animal black is placed upon the sawdust. By placing two or three of these vats above each other a perfectly pure oil is obtained.

Evil Effect of Beer-drinking.—At a recent meeting of the Medical Society of Munich, Bollinger called attention to the fact that the immoderate drinking of beer causes hypertrophy of the heart.

Artificial Tallow.

AN invention of Miguel de la Vega is spoken of in the *Organ für Oelhandel*, which has for its object the production of artificial tallow and fat from vegetable substances. This artificial tallow is meant for use in the preparation of lubricating substances, in the soap and candle manufacture, etc. The principal ingredient used is castor oil, which forms 60 per cent of the composition; the remaining portion consisting of ten per cent of tallow, ten per cent of rapeseed oil, mustard-seed oil, or cotton-seed oil, etc., and 20 per cent of fine flour. These various components are well mixed, and are then boiled for half an hour by means of steam.

Orthoxysulphite of Phenol is suggested by Laborde, in *Progrès Médical*, as a substitute for carbolic acid (phenol); another name for it is sulphocarbol. It is alleged to be free from the poisonous properties of carbolic acid, to be less odorous, and yet equally valuable for preventing putrefaction and fermentation.

Valerianate of cerium is suggested as a remedy in the vomiting of pregnancy, in place of the oxalate.

Butter may be kept fresh for months in a two-per-cent solution of sulphuric acid, a stoneware or wooden vessel being used as a container.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,313.—**Pharmaceutical Registration** (F. L. C., Vernon Centre, N. Y.).

By referring to the text of the new State pharmacy law which appeared in our last issue, you will find the information you desire.

No. 1,314.—**Bromine Vaporizer** (M. G., Vt.).

Parke, Davis & Co., of Detroit, Mich., are the agents in this country for the sale of the bromine vaporizer patented by Dr. Franke, of Charlottenburg, Germany. They also have the solidified bromine and will be pleased to answer any inquiries you may address to them on the subject.

No. 1,315.—**To Make Labels Adhere to Tin** (C., M.D.).

This correspondent says he has tried many proposed methods for accomplishing this, but has failed.

Let him try one of the following:

1. Wipe the place where the label is to be with a few drops of solution of soda or potassa, and then with a wet cloth. Then attach the label with mucilage containing a small percentage of glycerin, or with starch-paste.

2. Brush a little oleate of mercury (liquid) over the place, then apply a drop or two of solution of potassa, and wipe clean with a damp or wet rag. Attach the label as before.

3. Brush a thin streak of antimony trichloride (butter of antimony) over the spot, wipe it off and attach the label.

4. Roughen the place slightly with

fine emery paper, wipe it clean, and attach the label. We generally trust to this latter method more than to others.

The trouble experienced when precautions like the above are omitted is probably owing to the fact that the surface of tin-plate is greasy.

No. 1,316.—**"Safe Remedies"** (P.).

In our June number, p. 118, we gave what purports to be a close imitation of the nostrum you inquire about.

The composition of the other compounds you mention is not known.

No. 1,317.—**Mead** (L. S.).

We published an extensive series of formulæ for summer drinks in NEW REM., 1882, p. 182. From time to time we shall republish some of these, with such improvements as may have come to our knowledge. The formulæ desired by you are as follows:

Mead (Metheglin).—Water, 10 gallons; lemons, 2, cut in slices; honey, 2 gals.; ginger (dry), a handful. Mix together and boil for half an hour, carefully skimming all the time. While boiling, add 2 oz. of hops. Remove from the fire, and, while the liquid is luke-warm, add strong yeast, and put into a cask to work for about 3 weeks, when it will be fit for use.

Another Formula.—Water, 1 gallon; strained honey, 3 lbs. Boil about half an hour, adding ½ oz. hops; skim carefully and drain the skimmings through a hair-sieve, returning what runs through. Remove from the fire, and when the liquid is lukewarm, stir into it ½ pint of yeast, which is sufficient for 9 gallons of mead (to which quantity it may be made up by the addition of water). Put into a cask and let it work until fermentation subsides. Put a strong paper over the bung-hole. This mead may be flavored with spices while boiling, and makes a delicious summer drink.

No. 1,318.—**Parts by Weight in making Tinctures** (T. S. E.).

The new pharmacopœia has abandoned the use of all measures, except in the case of fluid extracts. Hence, in directing, for instance, under Tincture of Arnica, that

20 *parts* of Arnica Flowers should be made into

100 *parts* of Tincture, it is understood that both of these quantities are to be weighed. It is only necessary to substitute for "parts" any optional definite weight, as for example "drachms," or "ounces," or "pounds," or "grammes," or "kilogrammes." Let us say avoirdupois ounces. Then the directions will be, briefly, the following:

Weigh 20 av. oz. of Arnica Flowers, moisten them with 40 av. oz. of diluted alcohol [this being made by mixing equal parts, by weight, of alcohol and water], pack in a percolator, and pour enough diluted alcohol on top until 100 av. oz. of tincture are obtained.

For this purpose, a bottle of sufficient capacity to hold the 100 av. oz.—say a 1 gallon bottle—is carefully tared, and then placed under the percolator. After a sufficient amount of liquid has accumulated to come apparently near the required quantity, the bottle is occasionally weighed, until the contents are just 100 av. oz.

Since almost all alcoholic tinctures have a lower specific gravity than water, it is safe to allow as much liquid to accumulate, without weighing, as would equal the weight of 100 av. oz. of water. That is, 100 av. oz. *of water* may be weighed in the gallon bottle, the level of the liquid marked outside, then the water emptied, and the tincture collected in the same bottle. It will not be necessary to control the weight of the percolate before the volume of the latter has reached the mark for water, except in the case of tinctures which are heavier than water.

Where many percolations, by weight, have to be performed, and it is desirable to save frequent weighings, mechanical appliances may be used which stop the flow of the percolate as soon as the desired weight of liquid is in the bottle. These appliances also permit a percolation to be continued over night, and without being watched, since the flow is stopped automatically, as soon as the desired weight of liquid is obtained. We shall have occasion to describe some of these appliances shortly.

No. 1,319.—**Three Colors in one Show Bottle** (C. A. S.).

For bottom layer, glycerin may be used, or colorless glucose syrup, or any other colorless liquid of high specific gravity. These may be colored by chromic acid, picric acid, indigo-blue, caramel, or some aniline color. The middle layer may be water, for the coloring of which any water-soluble color may be chosen. The kind of color depends upon the individual taste of the interested person. For top-layer, oil of turpentine or naphtha may be selected. But it should be remembered that both of these liquids, *and their vapor*, are highly inflammable; hence the close proximity of a gas light, as is customary with show-bottles, involves a certain amount of risk.

A better plan is, as our correspondent indicates in his note, to use turpentine as middle layer and alcohol as top layer.

Sometimes we find that cudbear and alkanet are recommended for coloring the turpentine. The coloring matter of the former, however, is nearly insoluble in the liquid, and the latter only slightly soluble. It is much better to use a resinous substance such as dragon's blood, or one of the vegetable oleoresins, which are quite resisting to day-light, as, for instance, oleoresin of capsicum, which imparts a reddish to reddish-yellow tint; oleoresin of male fern, which imparts a greenish tint. A nice tint of more permanence may also be produced by proceeding as follows: Dissolve sandarac in solution of potassa, diluting with water and precipitate with a solution of acetate of copper. Wash and dry this precipitate, and dissolve it in the oil of turpentine.

To color the alcoholic layer is an easy matter and will require no suggestion on our part.

No. 1,320.—**Fluid Extracts by Repercolation** (H. C. W.).

In previous issues of this journal (f. i., NEW. REM., 1879, p. 1), you will find the process of preparing fluid extracts by repercolation minutely described. You will likewise find a description in the latest issue (fifteenth ed.) of the U. S. Dispensatory, page 582.

No. 1,321.—**Restoring Rancid Butter** (Ch. G.).

Rancid butter may be restored, or at least greatly improved, by cautiously melting it over a water-bath, or with steam (at as low a heat as possible), and mixing it with some *fresh-burnt* and *coarsely* powdered animal charcoal, which must have been very carefully freed from all fine dust by sifting, and afterwards straining it through flannel.

Another less troublesome method, said to be even better, is to wash (knead) the butter first with some good fresh milk and then with cold water.

No. 1,322.—**Text-book on Organic Chemistry** (J. L. T. D.).

This correspondent asks us to name a work on organic chemistry more elaborate than the usual text-books, and specially adapted to the wants of the pharmacist.

In reply, we would say that there is probably no single work in existence which fully covers the wants of our correspondent, at least in English. By consulting, successively, the latest editions of Fownes, Attfield, Mott, Pinner (by Austen), Wurtz (by Green), Wöhler, Remsen, and Roscoe and Schorlemmer (the work of the last-named authors is not yet complete), you will probably find all the information desired. If analytical information is desired, you may consult Prescott's Organic Analysis, Allen's Commercial Analysis, Hoffmann's Handbook, etc.

The work which of all others comes nearest to our ideal of a comprehensive treatise on pharmaceutical chemistry, particularly for self-study, is that by Dr. Ernst Schmidt, of Halle: *Ausführliches Lehrbuch der Pharmaceutischen Chemie*, 2 vols. Braunschweig, 1880–1882. A briefer work, but likewise of first-rate importance, is that of Prof. Flückiger: *Pharmaceutische Chemie*, a new edition of which is in preparation.

Of text-books on physiological chemistry, the latest and best are those of Hoppe-Seiler (of Strassburg), the late Gorup-Besanez (of Erlangen), and Hoffmann (of Vienna). For methods of physiological analysis, we can highly recommend the recent work of Dr. Krukenberg: *Grundriss der medicinisch-chemischen Analyse*. Unfortunately, there is no modern treatise on physiological chemistry in existence in English which could pretend to be as comprehensive and authoritative as the works above named, though we have information that a work of the kind is in course of preparation.

No. 1,323.—**Rubber Cement** (O.).

Rubber may be cemented to iron by the following method.

Mix one part of powdered shellac with ten parts of strongest water of ammonia, and shake the mixture occasionally during three or four weeks, keeping it well stoppered, until it becomes liquid, when it will be ready for use. Apply a coat of the solution to the surface of the rubber which is to be cemented. This will cause the rubber to soften, but it will become hard again when the ammonia evaporates. While the rubber is soft, apply it to the substance—glass or metal—and exert a steady pressure. It will then become firmly attached to it.

Another good cement for this purpose is marine glue, which we have repeatedly described.

No. 1,324.—**To Cover the Odor of Tar** (C., M.D.).

This correspondent has tried various essential oils to cover the odor of tar, but without success.

The odor cannot be entirely covered, but it can be greatly modified and deprived of much of its disagreeable character by oil of mirbane (artificial oil of bitter almonds).

No. 1,325.—**Abrus Precatorius** (M. D.).

The only detailed paper treating of the pharmacognosy of the seeds of this plant which has come to our notice is by Wladimir Tichomirow and is contained in the *Bulletin de la Société Imp. des Naturalistes de Moscou*, 1883, No. 3, p. 133, "Paternoster-Bohnen," etc.

No. 1,326.—**Constituents of Genuine Sherry** (W. & Co.).

There is no wine which has at all times a uniform and constant composition. While this is true of natural, unmanipulated wines, it is of course much more so of fortified (brandied) wines, such as sherry. Nevertheless, there is a certain mean between the upper and lower limits, which probably varies but little from the figures below given. These represent the composition of a sample of "genuine sherry" analyzed by E. List (in *Arch. f. Hyg.*, 1,500).

Spec. Gr. at 15° C.....	0.9875
Alcohol, per cent by weight	17.21

Extract, calculated	3.64
" as weighed	3.75
Ash	0.232
Alkalinity of latter in cubic centimeters of normal acid	1.6
Phosphoric Acid	0.0319
Sulphuric "	0.0219
Potassium Sulphate	0.0476
Acidity in cubic cent. of normal alkali	0.85
Acidity, easily volatile, do.	0.15
Acidity, as tartaric acid	0.6375
Glycerin	0.914
Polarization (Wild)	1.66
do., after inversion	1.66
Chlorine	scarcely traces

No. 1,327.—**Assay of Liebig's Extract of Beef** (Corm.).

The Hygienic Institute of Munich some time ago published a method for the assay of extract of beef, which it recommends for general adoption by analysts, in order to bring about some uniformity and to permit comparisons between different analyses. The method is quite simple, and deals with the determination of the ash, the water, and the proportion of extract soluble in eighty-per-cent alcohol; it also takes into account the physical condition and flavor of the extract.

The determination of the water insures the proper degree of concentration; the quantity of ash must correspond to the natural amount of ash in meat-juice; and the alcoholic extract, after making allowance for the ash and water, permits the estimation of gelatin and other substances insoluble in alcohol.

1. *Determination of ash.* About 1 Gm. of the extract is slowly incinerated in a platinum or thin porcelain crucible until a white ash remains.

The presence of *added* chloride of sodium can be immediately ascertained by the proportion of the ash to the figures obtained in the subsequent operations.

2. *Determination of water.* About 2 Gm. of the extract are dried during thirty-six hours at 100° C. (212° F.).

3. *Determination of alcohol-soluble matters.*—About 2 Gm. of the extract are weighed in a beaker-glass and dissolved in 9 C.c. of water. This concentrated aqueous solution is mixed with 50 C.c. of alcohol of 93% (Tralles) [or 49 C.c. of U. S. Ph. alcohol], which produces a copious precipitate which adheres firmly to the sides of the beaker. The clear alcoholic solution is then poured off into a tared capsule and evaporated at about 70° C. (158° F.). The precipitate is washed with 50 C.c. of alcohol of 80%, the washings evaporated in the same capsule as the first alcohol extract, and the residue finally dried during six hours, at 100° C. (212° F.).

The *ash* may vary between 22 and 25%; the *water* between 16 and 21%; the alcoholic extract between 56 and 65%. The outside and mean figures obtained in 170 assays were the following:

	Ash.	Water.	Alc. Extr.
Maximum,	25.2	21.8	64.9
Minimum,	22.3	16.4	57.3
Mean,	23.02	18.79	61.85

No. 1,328.—**Chloride of Potassium** (O. J.).

The use of *chlorate* of potassium as a gargle in certain affections of the mouth or throat depends to a great extent upon a misapprehension, although it is now acknowledged that the chlorate acts, in many cases, equally well. Many years ago, some German practitioners recommended *kalium chloratum* for this purpose, and this was mistranslated in English, by *chlorate of potassium*, while it should have been *chloride of potassium*. The chemical formula of the former is $KClO_3$; that of the latter KCl. The former contains oxygen, and has different physiological effects from the latter. Whether it ever can act as a supplier of oxygen, when taken internally, is highly problematical, though often supposed to act as such. Chloride of potassium is free from oxygen, and non-poisonous in ordinary doses, while the chlorate has not infrequently caused toxic effects. Chlorate of potassium requires about sixteen parts of water for solution, at 15° C. (59° F.) the *chloride* only a little over three parts.

No. 1,329. — **Corrosive Sublimate Gauze** (U. S.).

In the practice of a good many surgeons, and in some hospitals of this country, this antiseptic gauze is made by immersing *bleached* absorbent muslin in a solution of

Bichloride of mercury	20 parts.
Glycerin	500 "
Water	4,480 "

for about half a day, then wringing out and allowing to dry as far as the glycerin will permit.

Metallic instruments cannot be dipped into this solution, as they will be coated with a layer of mercury, or, in other words, will become amalgamized.

No. 1,330.—**The New French Pharmacopœia** (Dr. B. W. B.).

Hitherto we have only given a few extracts from this work, because its use in *this* country is very limited and its preparations are but seldom demanded. However, such articles and preparations as appear to be of general interest, will be laid before our readers as occasion may require.

No. 1,331.—**Elixir Dentifrice** (Codex).

	Parts.
Oil Cinnamon	1
Oil Staranise	2
" Cloves	2
" Peppermint	8
Tinct. Benzoin	8
" Guaiac	8
" Pyrethri	8
" Cochineal	20
" Alcohol, 80%	1,000

No. 1,332.—**Eau de Cologne** (Codex).

The old formula was:

	Parts.
Oil Bergamot	100
" Lemon	100
" Cedrat	100
" Lavender	50
" Neroli	50
" Rosemary	50
" Cinnamon	25
Alcohol, 90%	12,000
Spirit of Melisse (Eau de Carmes)	1,500
Spirit of Rosemary	1,000

Spirit of Melisse (Eau des Carmes) is thus prepared:

	Parts.
Melissa, fresh in flower	900
Lemon peel	150
Nutmeg	80
Ceylon Cinnamon	80
Coriander	40
Angelica Root	40
Alcohol	5,000

Macerate four days, then distil off 4,250 parts.

The formula in the new Codex is:

	Parts.
Oil Bergamot	10
" Portugal	10
" Lemon	2
" Neroli	2
" Rosemary	2
Alcohol	1,000

Dissolve and filter.

No. 1,333.—**Eno's Fruit Salt** (Joliet).

This is said to be composed of Rochelle salt 3, tartaric acid 24, bicarbonate of sodium 30, powdered sugar 30 parts, and is flavored with lemon.

No. 1,334.—**Bleaching Starch** (N. Y. V. C.).

We were not aware that any bleaching-process was ever applied to starch, or that it is necessary, inasmuch as it only needs to be properly separated from gluten and other substances, to appear perfectly white. Just where the trouble is with the sample you sent us we are unable to say, but that it can be made whiter there is no doubt in our mind. Artificial bleaching matters, such as chlorine, permanganate, sulphurous acid, etc., would be useful (theoretically at least), if the color were due to an adherent coloring-matter, but it seems to be due to an admixture of a characteristically tinted impurity.

Probably, by consulting the best modern works on starch manufacture, you will hit upon the cause of the trouble. Such works are: Muspratt's Chemistry, vol. ii., article "Starch" (or the same work in its recent enlarged German edition, by Stohmann); also: Rehwald (Felix), Die Stärke-Fabrikation und Fabrikation des Traubenzuckers. 8vo. Wien (Hartleben).

No. 1,335.—**Neutralizing Cordial** (C. E. T.).

Neutralizing Cordial is the *Syrupus Rhei* of the U. S. Pharmacy of 1880. That of 1870 was merely a mixture of the fluid extract of rhubarb and syrup. The new syrup, however, contains carbonate of potassium and cinnamon, the proportions being: rhubarb, sliced, 90 *parts;* cinnamon, bruised, 18 *parts;* carbonate of potassium, 6 *parts;* sugar, 600 *parts;* water enough to make 1,000 parts.

No. 1,336.—**Universal Puts-Pomade** (Subscr.).

Notices on the composition of this have appeared in this journal, New Remedies, 1883, pp. 213, 249, and 283.

One correspondent says it consists of Armenian bole and enough oleic acid to form a paste, and enough artificial oil of bitter almond to impart odor.

Another gives the composition as: rotten stone (levigated), 1 part; subcarbonate of iron, 3 parts; lard or olive oil, enough to render the product of the consistence of lard, with some oil of bitter almond.

Gawalovsky says that Mendl's preparation consists of fatty acids, 54 per cent; oxide of iron, 10 per cent; powdered pumice stone, 32 per cent; and water and oil of mirbane, 3.66 per cent.

Different manufacturers, though using similar ingredients, naturally turn out varying products.

No. 1,337. — **State Pharmaceutical Associations** (S.).

As a supplementary answer to question 1,301 in our last June number, we append the following list of the names and dates of organizations of twenty-nine State Pharmaceutical Associations founded previous to 1884 (taken from a circular issued by the Executive Committee of the Kentucky Pharmaceutical Association).

California		Ohio	1879
New Jersey	1869	N. Carolina	1879
Mississippi	1869	Iowa	1879
N. Hampshire	1873	Illinois	1879
Rhode Island	1875	Kansas	1880
Vermont	1875	Wisconsin	1880
Tennessee	1875	Alabama	1881
Maine	1876	Missouri	1881
S. Carolina	1876	Virginia	1881
Georgia	1876	West Va	1882
Connecticut	1876	Indiana	1882
Kentucky	1877	Louisiana	1882
Pennsylvania	1878	Massachusetts	1882
New York	1879	Michigan	1883
Texas	1879		

No. 1,338.—**Phosphate of Calcium and Volatile Oils** (S. M. P.).

As a rule, the same amount of precipitated phosphate of calcium may be used as of carbonate of magnesium, which was formerly more commonly used. It takes about twice as much phosphate, by weight, as there is of volatile oil. The function of the phosphate (or carbonate) is not only to

facilitate the subdivision of the oil by trituration, but also to help to stop up the larger pores of the filtering paper when filtering, so that the liquid may run through clear.

No. 1,339.—**Lime-Juice; its Clarification and Preservation** (N. E. V. C.).

Lime-juice may be clarified by heating it, either alone or mixed with a small quantity of egg-albumen, in a suitable vessel, without stirring, to near the boiling point of water, until the impurities have coagulated and either risen to the top or sunk to the bottom. It is then filtered into clean bottles which should be completely filled and closed (with pointed corks) so that each cork has to displace a portion of the liquid in order to be inserted. The bottles are sealed and kept at an even temperature (in a cellar). In this way the juice may be satisfactorily preserved.

No. 1,340.—**New York and Brooklyn Formulary** (Kansas and New Orleans).

You may obtain this work from the College of Pharmacy of the City of New York, 209 and 211 East 23d street. The price is 50 cents plain bound; 65 cents interleaved; 25% discount on ten copies or more. We advise an interleaved copy for entering notes.

By the way, we may mention that steps are being taken to make the committee which published the Formulary a permanent one. The German Apothecaries' Society has already permanently extended the term of the committee appointed by it, and has selected as members Messrs. Rice, Meumann, Schleussner, Louis, and Ramsperger.

At the next meeting of the Kings County Pharmaceutical Society, and of the College of Pharmacy, similar action will no doubt be had.

No. 1,341.—**Gelatin-Coating of Pills** (Exc.).

At a recent meeting of the Massachusetts State Pharm. Assoc., Professor Edgar L. Patch read a paper on Pill Coating, from which the following is taken, which refers to gelatin-coating:

"Gelatin alone is slowly soluble in water, first swelling, then dissolving; so its solubility should be increased by the addition of some other body. Acacia, sugar, glycerin, acetic acid, are among the substances recommended. If the last three are added in quantity sufficient to secure solubility, the coating dries very slowly. The acid is volatilized by the heat, and the composition of the coating soon altered.

"After trying many such mixtures I have settled upon the following as giving the best results in the greatest number of cases, the coating being quite as soluble, if not more soluble, than any so-called soluble coatings of the market:

"Best French gold-labelled gelatin, 2½ ozs., avoirdupois; distilled water, 7 fluid ozs. Macerate until the gelatin softens, dissolve by water-bath, add powdered boric acid, 2 drachms; then slowly add mucilage of acacia, U. S. P., 1880, 2 fl. oz., and strain.

"Much of the success of the process depends upon having the solution of droper density; the thinner it is the better, provided it furnishes a complete and firm coating when dry.

"Of course the warmer the solution the more rapid the drying; but judgment must be exercised in regulating the temperature to the case in hand, just as we regulate the quantity and quality of the excipient employed in pill-making by the nature of the ingredients of the mass.

"If the solution is too warm it may soften and destroy the form of the pill; or in cooling, the gelatin may contract and split or crack.

"Pills consisting largely of aloes and the various gum resins, or of solid extracts, should be made very hard and dipped in thin, comparatively cool solution.

"If dipped in too warm solution the pills will soften, and when the gelatin cools the contraction will cause the softened mass to shoot out of the needle hole. Being dipped in cooler solutions, it of course requires more time for such pills to dry.

"Pills containing carbonate of ammonium, citrate of iron and quinine, and other scaled salts, valerianates, acetates, alkaline iodides, etc., should also be dipped in cool solution.

"Pills designed for coating should always be made as hard as possible, and the use of *glycerin* as an excipient should be avoided, as it has a tendency to soften the coating.

"*Glucose* forms a good general excipient for pills to be coated, being used alone with quinine, and with the addition of a little powdered extract of licorice in dark pills, if need be.

"If the solution has been properly made and it subsequently thickens, a little distilled water should be added from time to time.

"To prevent adhesion to the needles the latter should be greased with a little petrolatum.

"A convenient way of accomplishing this is to have a pad saturated with the petrolatum, into which the needles may be thrust at one time.

"The excess of gelatin taken up by the pills should be removed by touching to the under heated surface of the lid and cover.

"A common mistake consists in piercing the pills too deeply with the needles and then subsequently dipping the pills too deeply into the solution.

"The needles should be thrust into the pills just far enough to prevent their coming off, and the pills should be dipped into the solution just deep enough to barely cover them."

Formulæ Asked for.

1. What is the composition of Longueville's *Gestiano*.
2. *Marshall's Cubeb Cigarettes.*
3. *Fluid Magnesia*, similar to Dunbar's.

BIBLIOGRAPHY.

UEBER DAS SCHICKSAL DES CAFFEIN UND THEOBROMIN IM THIERKOERPER. Nebst Untersuchungen über den Nachweis des Morphins im Harn. (Inaug. Dissert.). Von RICHARD SCHNEIDER. 8vo. Dorpat, 1884.

[Caffeine is completely and rapidly absorbed from any part of the intestinal canal; if given in small doses, it is all decomposed and not traceable in the urine; in doses of over about 0.5 Gm. (8 grains), a portion passes off in the urine. If diuretics are used, even small doses are carried off through the urine. No caffeine appears in urine after partaking of usual quantities of tea or coffee. Theobromine behaves like caffeine, though it is less easily decomposed.]

DRUGS AND MEDICINES OF NORTH AMERICA. A quarterly, etc. (see our May number, page 96). By J. U. LLOYD & C. G. LLOYD, Cincinnati, 1884. Number 2.

Of this excellent publication the second number has reached us, and even a cursory glance will convince the reader that the authors have left no stone unturned to bring their work as near completeness and perfection as possible. The literary references in this number are given with much greater minuteness and fulness than in the first number, and this enhances the value of the work very materially. In fact we are very glad that the authors have made this improvement already in the second number.

The present number concludes the account of Anemone patens and brings that of Hepatica which is full of interest, and part of that of Ranunculus bulbosus. The text contains a notable amount of new contributions to the chemistry of the drugs not heretofore known, and of much interest and importance.

DIE FRANZÖSISCHE PHARMAKOPÖE VOM JAHRE 1884. (Von DR. BRUNO HIRSCH). Reprint from *Pharmaceutische Centralhalle*, 1884.

[This is a critical and very detailed review of the new French Codex, written by one of the most competent authorities. We have already mentioned that the French Codex is comparatively of little importance in this country, being used but sparingly, and that only in certain cirumscribed sections of the country.]

POISONING BY CANNABIS INDICA: Two Drams of Herring's English Extract Indian Hemp being Taken without Suicidal Intent. By A. B. COOK, A.M., M.D. (Reprint from *Am. Practioner.*)

[The most efficient agent for overcoming the remarkable and alarming symptoms of poisoning noticed in this case was the battery, and the author expresses his opinion that this is probably the most reliable agent in all cases of poisoning by narcotics.]

BERGHOLZ (Alexander). Ein Beitrag zur Kinogerbsäure. 8vo. Inaug.-Dissert. Dorpat, 1884.

A DICTIONARY OF THE ACTION OF HEAT UPON CERTAIN METALLIC SALTS. Including an Index to the Principal Literature upon the Subject.

Compiled and arranged by J. W. BAIRD, M.A., Ph.C.; Contributed by PROF. A. B. PRESCOTT. 8vo. N. Y., 1884. (Reprint from *Journ. of Am. Chem. Soc.*)

EIGHTEENTH ANNUAL CATALOGUE of the Massachusetts College Pharmacy. 8vo. Boston, 1884–85.

EINIGE PRAKTISCHE ERGEBNISSE MEINER UNTERSUCHUNGEN UEBER DAS CHLOROPHYLL DER PFLANZEN. Von Dr. A. TSCHIRSCH, of Berlin. 8vo. [Some Practical Results of my Investigations on the Chlorophyll of Plants.] (Reprint from *Arch. der Pharm.*, 1884.)

Haussner (George). Ueber Minyak-Lagam. Zur chem. Kenntniss der Balsame aus der Fam. d. Dipterocarpeen. 8vo (Inaug. Diss.), Erlangen, 1884.

Noter (R. de). Arbres fruitiers et Plantes officinales exotiques à acclimater en Algérie. 8vo, pp. 39. Algiers, 1884.

(On cultivation of foreign officinal plants in Algiers.)

Ralfe (C. H.). Clinical Chemistry (Analysis of Blood, Urine, Morbid Products, etc.). 8vo, London. 6 sh.

Sigismund (Dr. Reinh). Die Aromata in ihrer Bedeutung für Religion, Sitten, Gebräuche, Handel und Geographie des Alterthums. 8vo, Heidelberg. *m.* 2.50.

Strasburger (Dr. Ed.). Das Botanische Practicum. Anleitung zum Selbststudium der mikroscopischen Botanik. 8vo, Jena, 1884. (182 illus.) 15 *m.*

(Guide to Self-instruction in microscopical Botany.)

Henry Watts, the eminent English chemist, author of the voluminous Dictionary of Chemistry, editor of the English edition of Gmelin's Chemistry, and editor of the later editions of Fownes' Chemistry died on June 30th.

ASSOCIATION AND COLLEGE NOTES.

American Pharmaceutical Association.—The following call has been issued to every member:

DEAR SIR:—We address you in the interest of the American Pharmaceutical Association, of which you are a member. The subject of papers and queries is an important feature of the organization, and by means of this department many facts valuable to the scientific world have been yearly brought forward. We hope the coming meeting will be of special interest in this direction, and we address you direct and earnestly, urge you to contribute, either a paper on some interesting subject, or the subject for a query regarding some substance that deserves investigation.

In connection with this matter, we feel that we need not hesitate to say that in no other manner can a paper be so forcibly presented to pharmacists and the scientific world. The reports of our meetings are standard authorities. The papers read and discussed by us are published in the pharmaceutical journals of our country. In contributing to our society, you will not only aid the interest of our meetings, but the general advancement of pharmacy.

Please address your communications to J. U. Lloyd, Cincinnati, Ohio, at as early a date as possible.

In order that the meetings progress without interruption, it is necessary that the papers be early in the hands of the committee, and they should be forwarded at least two weeks before the meeting of the society, which convenes in Milwaukee, Wis., Tuesday, August 26th.

We would most earnestly ask you to consider the foregoing.

J. U. LLOYD, Cincinnati,
GEO. W. SLOAN, Indianapolis,
W. W. BARTLETT, Boston,
Comm. on Papers and Queries.

Mr. Thomas J. Macmahan furnishes the following information as to rates from New York to Milwaukee on the occasion of the meeting of the N. R. D. A. and A. P. A. in August.

The rates from New York to Chicago will be $20 by the Pennsylvania or New York Central roads, and $18.50 by the Erie, West Shore, Baltimore and Ohio, or D., L. and W. roads. Return fare will be one-fourth the lowest unlimited rate (which is $20) by any of the pool roads. This will make the lowest round-trip fares $23.50. From Chicago to Milwaukee the fare is $2.75 by the Milwaukee and St. Paul road, and the return fare one-fifth that amount. A special car will leave New York by the Erie at 8 P.M., on Friday, the 22d of August. Parties desiring sleeping-berths should inclose $10 to Mr. Macmahan, at 142 Sixth avenue, to secure a section. This provides for two, and the holder of the section will have the choice of berths and can arrange later on to share the section with some one else, as there is little doubt that the car will be filled with delegates from New York.

From Boston, Mr. Colcord will take out a party of 25 or 30, via the Hoosac Tunnel route, at $30.50 for the round trip, exclusive of sleeping-accommodations.

New York.—The Governor has appointed, from the ten names presented by the N. Y. S. P. A., the following gentlemen to constitute the New York State Board of Pharmacy: Dr. Alfred B. Huested, Albany; Messrs. Edward S. Dawson, Jr., Syracuse; Hiram S. Haskin, Ithaca; J. Hungerford Smith, Ausable Forks; and Clark Z. Otis, Binghamton.

At the organization meeting of the New York City Board of Pharmacy, Professor P. W. Bedford was elected president, and Dr. Wm. Balser secretary, each for a term of three years. At the meeting for examination, June 25th, six candidates were examined, the following three being successful: Messrs. F. F. Sorgatz, William Friedrich, and Ernest Gebhardi. Examinations in the future will be held at the College of Pharmacy, 209–213 E. 23d street, New York, on the second Monday of the month, after September 8th, on which date the next meeting will take place. Applicants who furnish satisfactory evidence of having complied with the law may be registered by calling at the office of Dr. Balser, 218 E. 13th street, between 2 and 3 or 7 and 8 daily, Sundays excepted.

A regular meeting of the New York Druggists' Union was held at the College of Pharmacy, on Thursday, at 2.30 P.M. President Ditman presided and Mr. Schmid acted as secretary.

The calling of the roll showed about seventy-five members present.

Mr. Henry Schmid, of 38 Avenue A, was elected secretary, in place of Geo. Inness who resigned, some time since, for want of time.

A discussion arose as to the right of the Bureau of Combustibles to charge druggists $2 for a permit to carry certain goods known as combustibles.

Mr. Bendiner informed the meeting that every druggist in the city must apply for a permit, but that it was not necessary to pay any fee. (It has since been decided that the permit must be obtained and that the fee of $2 *must* be paid.)

Among the business transacted, a motion was passed indorsing the New York and Brooklyn Formulary.

At a meeting of the Executive Committee of the New York State Pharmaceutical Association held at Binghamton, on July 10th, it was decided that the date for holding the next annual meeting be changed to the third Tuesday in June, 1885, as on the date previously selected the hotels of Saratoga will not yet be opened.

The regular monthly meeting of the Queens County Pharmaceutical Association was held at Long Beach Hotel, on Thursday, July 17th.

The association has now on its roll thirty members. The next meeting will be held at Long Island City, on August 21st, at 3 P.M.

Rhode Island.—The regular quarterly meeting of the Rhode Island State Pharmaceutical Association was held at the Hotel Aquidneck, in the city of Newport, on Wednesday, July 2d, President W. H. Cotton occupying the chair, and Secretary Harvey I. Leith recording.

After the minutes of the previous meeting had been read and approved, President Cotton reviewed the progress of the association since its organization ten years ago with 29 members, it now numbering 132, an increase of 120 per cent during the past half-year, a result which must be particularly gratifying to all.

In compliance with the motion for the appointment of delegates to the American Pharmaceutical Association, which will convene at Milwaukee on Tuesday, August 26th, the President selected Messrs. Henry J. Alfrends, William B. Blanding and Harvey I. Leith. Mr. Walter Price, of Westerly, was then elected a member of the association.

Mr. Burdick, of Westerly, offered the following resolution, which was unanimously adopted:

Whereas, The practice of paying a percentage on prescriptions is demanded by the medical fraternity in some parts of the country:

Resolved, That the members of the R. I. S. P. A., believing that this practice is beneath the dignity of the pharmacist and unjust to the customer, will, under no circumstances, directly or indirectly, allow such percentage.

On motion, the secretary was ordered to invite the Rhode Island Medical Society to co-operate with them in putting this regulation in practice. The secretary was also requested to keep a list of unemployed assistant pharmacists, and on application to furnish registered pharmacists a copy thereof. By unanimous vote, Secretary H. I. Leith was made a life member and exempted from all dues.

It was moved that monthly instead of quarterly meetings be held at such places as the President may select. Motion carried.

Sundry bills were then allowed and ordered paid. The association then at 4.20 P.M. adjourned.

Among those present as guests were Prof. Edwin C. Calder, of Providence; Mr. P. W. Bedford, of New York; Prof. G. F. H. Markoe, Messrs. Henry Canning, and W. W. Bartlett, of Boston; J. W. Colcord, of Lynn, and J. Redfearn, of Fall River.

Washington, D. C.—The eleventh annual commencement exercises of the National College of Pharmacy took place on the evening of June 12th, at Lincoln Hall, Washington, D. C. The speakers of the evening were Professor E. T. Fristoe, who addressed in particular the graduating class, and President G. G. C. Simms, who conferred upon the graduates the degree of Phar. D. The members of the graduating class were: Edward R. Bigelow, Lewis Flemer, George J. Lockboehler, Laidler Mackall, and B. B. Owens.

Massachusetts.—A meeting of the pharmacists of the Northern section of Worcester County, Mass., was held in Fitchburg, May 5th, when a permanent organization was formed to be known as the Worcester North Druggists' Association. W. A. Macurda, of Fitchburg, was chosen President, Converse Ward, of Athol, Vice-President, and H. F. Rockwell, of Fitchburg, Secretary. A committee of three, consisting of H. A. Estabrook, of Fitchburg, E. E. Burdett, of Leominster, and F. W. Lord, of Athol, was chosen to draw up resolutions favoring the Campion plan, and to forward such to leading manufacturers of patent medicines.

At a special meeting, held June 16th, this committee made the following report:

Resolved, That we heartily indorse the Campion plan, and pledge ourselves to sustain the full retail prices fixed by those manufacturers who have adopted said plan, or who shall at any time hereafter adopt the same.

Resolved, That we will encourage the sales of all articles on the Campion list, to the exclusion, as far as possible, of the preparations of those manufacturers who are not disposed to enter into this popular arrangement for the protection of the retailer and for the mutual advantage of both.

Michigan.—The School of Pharmacy of the University of Michigan, at Ann Arbor, graduated the following lady and gentlemen at its commencement, on June 26th: C. W. Allmand, Edward Blum, W. H. Burke, E. E. Calkins, E. T. Case, C. L. Coffin, J. T. Conrad, W. H. Cooper, J. G. Craig, G. M. Cushing, W. E. Damon, G. V. Dawson, Miss Mattie Eaton, F. H. Frazee, L. H. Gardner, C. P. Godfrey, C. B. Harvey, W. B. Hoge, A. G. Hooper, Charles Hueber, C. N. Lake, G. W. Leaman, J. D. Meier, T. D. Pease, C. S. Peyton, Chas. Rübe, A. A. Schott, A. C. Schumacher, Channing Smith, H. W. Snow, W. E. Stevenson, W. I. St. John, F. A. Travis, A. T. Wagoner, R. M. Wetzel, E. L. Wilhite, W. C. Wyckoff.

Canada.—The annual meeting of the Quebec Pharmaceutical Association was held at Quebec June 10th. The

Treasurer's annual statement showed a balance on hand of $552.18. The President, in his address, reviewed the work of the year, and complimented the Society on its satisfactory condition. The following gentlemen were elected members of the Council:—Messrs. H. R. Gray, A. Manson, H. F. Jackson, Edmond Giroux, Sen., H. S. Evans, J. D. L. Ambrose, P. Mathie and F. C. Saunders. Messrs. J. A. Harte, S. Lachance, John Kerry and A. J. Covernton, who remain in office in accordance with the provisions of the Pharmacy Act, constitute, together with those elected as above, the Council for the current year. Messrs. H. S. Evans and S. Lachance were elected auditors. The Board of Examiners held an examination on June 9th and 10th. There were five major candidates, three minor, and two preliminary. The following were successful: Major—Hy. Vernier, Quebec, and Jules Hirtz, Montreal. Minor—A. E. Giguere, Quebec; T. Codene, Montreal, and Geo. Treggett, Quebec. Preliminary—M. Bouchard and Robert Webb.

New Jersey.—The druggists of Camden, N. J., are circulating for signatures a protest to the Common Council against the ordinance recently passed requiring the druggists to pay a license fee of $200 for the sale of liquor, whether sold for medicinal purposes or not. A few of the older druggists are in favor of the ordinance, but the majority are opposed to paying any fee.

The Camden, N. J., druggists have formed a permanent organization by electing A. P. Brown *President*, and Stanley G. Muschamp *Secretary* and *Treasurer*. Their constitution and by-laws are similar to those of the Philadelphia organization.

The Board of Pharmacy of the State of New Jersey held a special meeting Thursday, July 10th, at 480 Broad st., Newark. The following persons being graduates of pharmacy, were registered: Wm. H. Gifford, Bernard Ettinger, Henry L. I. Burmeister, Emlin Martin, Joseph Somerhoff, Ludwig Glaesser, Stephen D. Wooley. Eleven persons appeared for examination. The following six proving successful, received their certificates: Josia Hornblower, Jr., Benj. Monaghan, P. S. Wadsworth, W. E. Donough, Edwin Abrams, Frederick Klemiche.

The next regular meeting will be held at 480 Broad st., Newark, on Thursday, July 17th, 1884, at 11 A.M.

The annual meeting of the Board of Pharmacy of the State of New Jersey was held on Thursday, July 17th, 1884, at 481 Broad street, Newark. The following officers were elected to serve for one year: Chas. Holzhauer, Newark, *President;* Wm. R. Laird, Jersey City, *Treasurer;* G. A. Mangold, Trenton, *Secretary*.

Nine persons appeared for examination, and the following having passed satisfactorily received certificates: J. Howard Leggett; C. P. De Yoe, M.D.; J. L. Myers; J. C. Rush; W. E. Shuit; Andrew Burkhardt; Andrew B. Kirkpatrick, M.D. Mr. E. R. Petty, being a graduate of pharmacy, was registered.

Minnesota.—At the last meeting of the Southern Minnesota Pharmaceutical Association, held for the purpose of completing its organization, the following officers and committees were chosen:

F. A. Poole, Rochester, *President;* S. L. Crocker, Fairbault; L. G. Nelson, Kasson, *Vice-Presidents;* G. Hargesheimer, Rochester, *Secretary;* J. Grinnell, Kasson, *Treasurer;* L. G. Nelson, Kasson; George Weber, Rochester; Geo. H. Ely, Dodge Center; A. O. Heiberg, Rushford; A. Olson, Blooming Prairie, *Executive Committee;* James Barnett, Oronoco; J. G. Bush, Dover; W. W. Jewell, Pine Island, *Committee on Arbitration.*

The next annual meeting will be held on the second Tuesday in May, 1885. A meeting of the Executive Committee will be held at Rochester, Minn., August 19th.

Missouri.—The regular meeting of the Alumni Association of the St. Louis College of Pharmacy was held June 17th at the college rooms. President Bohm occupied the chair.

California.—A druggists' union has been organized by the retail druggists of Sonoma County, Cal., and a constitution and by-laws holding them to the strict observance of full prices on proprietary medicines and preparations, and to maintain a standard for all duplicates of physicians' prescriptions, have been adopted. A violation of this agreement will incur a forfeit of $25.

Wisconsin.—The Wisconsin Board of Pharmacy held a meeting at Fond du Lac, June 17th and 19th. There were eighteen applicants for examination. "Licentiate Certificates" were granted to W. B. Mitchell, Oconto; H. W. Mott, Oconto; A. K. Luckenbach, Oconto; T. L. Thomson, Jefferson; Ernst Geltch, Cedarburg; Chas. Szarzyuski, Milwaukee; F. A. Schuber, Beloit; H. B. Sears, Beaver Dam; W. G. Blair, Waukesha.

"Minor Certificates" were secured by H. T. Germond, Fond du Lac; O. E. Kills, River Falls; and Raphael Soquet, Green Bay.

The following certificate as Registered Pharmacist was also granted, to R. A. Loope, Black Creek. Certificates as Graduates were given to L. E. Brainard, Oconomowoc, and G. E. Nyeborg, Racine.

The Board will hold a meeting for examination at Madison, August 5th, the same time as the Association meeting, thus giving a chance to visit the Association and come for examination at the same time.

Illinois.—The fifth annual meeting of the Illinois Pharmaceutical Association will be held in the city of Bloomington, commencing September 30th. It promises to be the largest meeting ever held in the West. Manufacturers desiring to make displays should correspond with the local secretary, J. P. Espey.

Mr. Thomas Whitfield has been elected president of the Chicago College of Pharmacy. Professor Hays retires from the chair of Applied Chemistry.

The following officers were elected at the annual meeting of the Chicago Drug, Paint, and Oil Exchange: James R. Owen, *President;* Gorham B. Coffin, *Vice-president;* F. E. Pettett. *Secretary;* William Moseback, *Treasurer;* Thomas Lord, C. H. Cutler, E. W. Heath, P. Van Schaack, and L. A. Lange, *Directors.*

Kentucky.—The first commencement exercises of the Louisville School of Pharmacy for Women took place on July 1st. The graduates were: Miss Fauntine Vetter, Miss D. W. Marble, and Mr. R. T. Creason.

ITEMS.

The British Pharmacopœia Committee of the General Medical Council met on Friday, June 21st, to consider the additions and omissions which it is proposed to make in the next edition of the British Pharmacopœia. According to the *Medical Press and Circular*, it has been decided that the volume shall be published before the end of the present year.—*Pharm. Journ.*

Mr. E. Bremridge, for thirty years Secretary and Registrar of the Pharmaceutical Society of Great Britain, to whose zeal and fostering care a large portion of the success of the Society is mainly due, has been retired with an honorary life pension of £400, and his son, Mr. R. Bremridge, has been appointed in his place.

It is said of Sylvius that he ordered patients to drink from 150 to 200 cups of tea daily.

Armand Gautier has announced to the French Academy the production by him of xanthine synthetically.

Silvia Paveri, of Milan, recommends the use of tow in place of absorbent cotton, when prepared as follows: Boil for some time in a lye of wood-ashes or with a two-per-cent solution of caustic soda. Then wash repeatedly in water; after which bleach by immersion for several hours in a ten-per-cent solution of chloride of lime, stirring it occasionally. When it is perfectly white, wash thoroughly, dry, and card.

PHARMACEUTICAL CALENDAR.—AUGUST.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.
Friday 1st.	American Chem. Soc.—New York.
Mond. 4th.	Erie Co. (N. Y.) Pharm. Assoc. An. Meeting.—Buffalo.
Tues. 5th.	Wisconsin State Pharm. Assoc. An. Meeting.—Madison.
	Wisconsin State Board of Pharm. Exam.—Madison.
	Maryland Col. Pharm.—Meeting.
	Rhode Island Chem. and Drug. Assoc.—49 Weybosset St., Providence, at 8 P.M.
Wed. 6th.	Indianapolis (Ind.) Assoc. of Pharm.
Thurs. 7th.	Hamilton County Assoc.—Noblesville, Ind.
	Louisville (Ky.) Col. of Pharm.—Pharm. M.
Tues. 12th.	National Col. of Pharm.—Washington, D. C.
Wed. 13th.	North Carolina State Pharm. Assoc. An. M.—Charlotte.
	Toledo (Ohio) Pharm. Assoc.
Thurs. 14th.	Newark (N. J.) Pharm. Assoc.
	Philadelphia Col. Pharm.—Alumni Phar. M.
Thurs. 14th.	Maryland Col. Pharm.—Meet.
	New York Germ. Apoth. Soc.—Meet.
	Lancaster Co. (Pa.) Pharm. Assoc.—Meet.
	Albany Co. (N. Y.) Pharm Assoc.
Tues. 19th.	St. Joseph (Mo.) Pharm. Assoc.—Meet.
	St. Louis Col. of Pharm. Alumni Assoc.—M.
	Amer. Soc. of Microscopists.—Rochester, N.Y.
	Executive Com. Southern Minn. R. D. A.—Rochester, Minn.
Thurs. 21st.	Queens Co. (N. Y.) Pharm. Assoc.—Long Island City, N. Y.
Friday 22d.	Rhode Island Chem. and Drug. Assoc.
Mon. 25th.	National Retail Drug Assoc. Annual Meet.—Milwaukee, Wis.
Tues. 26th.	Boston (Mass.) Druggists' Assoc.—Meet.
	American Pharm. Assoc. An'l. M.—Milwaukee, Wis.
Thurs. 28th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.

American Druggist

Vol. XIII. No. 9. NEW YORK, SEPTEMBER, 1884. Whole No. 123.

[Original Communication.]

THE MANUFACTURE OF SUGAR OF MILK IN SWITZERLAND.

BY J. KUNZ, CHEMIST.

1. *The Chemistry and Commerce of Milk-Sugar.*

Sugar of milk is a regular constituent of the milk of all mammals. Horses' and asses' milk usually contains 6 per cent and over, cows', goats', and sheeps' milk between 4 and 5 per cent, and hogs' milk 3 per cent. Woman's milk contains less albuminoids and fat than cows' milk, but a larger proportion of sugar of milk: on an average 6 per cent.

Owing to its comparatively difficult solubility and its great readiness to crystallize, sugar of milk may easily be obtained in a pure condition, and indeed such as it appears in the market, it is one of those commercial chemicals that most nearly approach purity.

If sugar of milk is crystallized by *cooling* its aqueous solution, and afterwards dried, the crystals contain 5 per cent, or 1 molecule, of water: $C_{12}H_{22}O_{11}.H_2O$. On the other hand, if it crystallizes during *evaporation*, the crystals are anhydrous: $C_{12}H_{22}O_{11}$, a circumstance which has formerly often been overlooked in calculating the results of milk analyses.

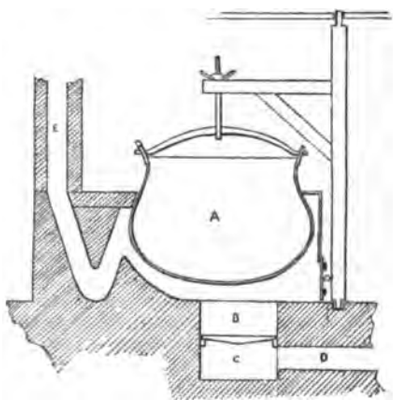


Fig. 1.—Cheese-Kettle.

A, kettle; B, fire-place; C, ashpit; D, draught-hole; E, chimney; F, turning crane for swinging the kettle from the fire.

When long kept in dry, warm rooms, crystallized sugar of milk loses any moisture mechanically inclosed by the crystals. For this reason, old stock is always preferred to new. Unseasoned milk-sugar is apt to become sticky during powdering, and as it easily becomes warm during this operation, often turns into a tough caoutchouc-like mass. On the other hand, if the milk-sugar was properly dried, no such disagreeable results will occur.

One of the first steps in the manufacture of milk-sugar is the removal of albuminoids and fat. The more complete the separation of the latter, the more easy will be the crystallization of the sugar. On this account, we find the manufacture of milk-sugar almost exclusively combined with that of "Swiss" cheese, particularly in the Alps, where the uniform method of feeding, the low temperature of the air, and the fact that the milk is usually worked up for cheese at its place of production, combine in facilitating an almost complete separation of the various constituents of the milk.

Though comparatively insignificant, alongside of the production of cheese and butter, yet the manufacture of milk-sugar has gradually grown up and become almost localized in the cantons of Berne and Luzerne. According to the statements of some manufacturers there residing, sugar of milk has been produced there, as a commercial article, during the past 400 years.

The first customer was Italy, which even to-day consumes considerable quantities for medicinal purposes—for instance, in the preparation of a popular laxative made from sugar of milk and lemon-juice.

At the present day, England and the United States are the chief consumers of milk-sugar, it being largely used there in homœopathic as well as in allopathic practice, and also reported as being frequently employed as an addition to milk for feeding babies.* Upon the Continent of Europe, cane-sugar is usually employed, instead of milk-sugar, on account of its being cheaper than the latter, the advantages of which, in other respects, are of course well recognized.

For technical purposes, milk-sugar never acquired much importance. It has been employed in the preparation of lactic acid, in silvering, and to a slight extent for making caramel.

Its consumption is remarkably uniform, while its production and value are the very reverse, fluctuating quite considerably. When the price is high, there is always an excess of production; in consequence of this, a sudden decline takes place, which again induces the manufacturer to reduce his output as much as possible, or to stop production altogether, until he can resume it with some hope of profit.

2. *The Manufacture of crude Milk-Sugar or "Sugar-sand."*

The manufacture of milk-sugar is carried on almost exclusively in two stages:

1. Preparation of "sugar-sand" (*Zuckersand*), and
2. Crystallization,

which are usually effected in different localities and by different persons.

The manufacture of "sugar-sand" is carried on in the same Alps of the Swiss Cantons of Berne, Freiburg, and Lucerne which produce the best Swiss cheese. According to the locality, the whey to be worked at one time differs in quantity between 300 and 1,000 liters (ab. 80 to 260 gall.). Every morning the milk just collected, as well as that of the previous evening, is poured from the milk-pails directly into the "cheese-kettles." When the casein has been separated, the remaining whey is heated to boiling, whereby a cream-like skin is formed on top, which is made to increase in quantity by the rapid addition of acidified whey ("whey-vinegar"). The skin (dialectic: "Vorbruch") is skimmed off and worked for butter. The addition of the acidified whey produces a partial separation of the albuminoids ("Zieger") from the whey, and the butter-fat is at the same time more completely raised to the surface.

Next follows the separation proper ("breaking") of the whey by the addition of more of the acidified liquor, about 15 liters for every 500, and gradual heating to incipient boiling.

If this process is properly performed, the albuminoids will now rise to the surface in large lumps, the whey* will lose its white color and appear as a limpid, greenish liquid ("Schotte") covered with the coagulated albuminoids. The latter is skimmed off and the liquid portion transferred into the "sugar-kettle." The quantity of whey ("Schotte") amounts to about 70 per cent of the original milk.

Figure 1 of the accompanying illustrations shows a "cheese kettle" suspended from a crane so as to permit its being quickly removed from the fire at the proper moment. These copper kettles are always imbedded more than one-half in the fire-place. For boiling down ("sand-boiling," *Sandkochen*), kettles with very flat bottom are selected, and these are permanently set in the stone-work as shown in Fig. 2, in such a way that the fire can touch only the bottom. This arrangement prevents the fire from coming in contact with any portion of the kettle above the contents, which would rapidly burn or blister the copper. Sometimes two such kettles are set up over one fire-hearth. Grates are not used under any of these kettles in the Alps.

The mason-work consists of stones held together by clay. As may naturally be supposed, only wood is used as fuel, in form of roughly split logs or roots. Its consumption is so

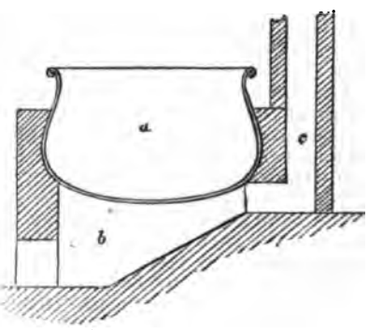


Fig. 2.—Sugar-Kettle.

a, kettle; *b*, fire-place; *c*, chimney.

great that the boiling of the sugar can only be carried on profitably in those Alps where there is an abundance of forests. But in some places, even there, the industry is forbidden on account of its consuming wood required for domestic or other purposes.

Five-hundred liters (132 gall.) of whey ("Schotte") require, for boiling down, 1 cubic meter (1.3 cub. yard) of logs. The boiling in the sugar kettle is continued day and night, without intermission; as soon as the contents of the kettle have been removed, it is immediately charged with a new quantity of whey ("Schotte").

The boiling reduces each charge to about one-fifteenth of its original bulk, and leaves a brown, viscid, sweetly saline mass, the condition of which is judged from the manner in which a sample drops from a dipper. When it has arrived at the proper degree of concentration, it is dipped out into a tub where the sugar will crystallize

* During the year 1878, I put on the market a new preparation, under the name of *Lactin*, which contains, besides milk-sugar, suitable proportions of those salts in which cow's milk is deficient when compared with woman's milk. Hence this preparation, if mixed with cow's milk, furnishes a product as closely as possible imitating woman's milk. This preparation has found much favor in Switzerland; but its introduction in other countries has been retarded or interfered with by worthless imitations.

* The author of the paper employs the term "Molken" in the ordinary sense of the English *whey*, being the whitish opalescent liquid remaining after the separation of the casein. This liquid, after further treatment to separate the albuminoids and the remainder of the fat still present, finally yields a transparent, greenish liquid which the author terms "Schotten" or "Schotte." This name is often used promiscuously as a synonym for whey. But in the special sense in which the author uses it, there is no English equivalent. We have translated it in doubtful cases by "whey (Schotte)." — Ed. Am. Drugg.

out after twenty-four to forty-eight hours, if the operation was properly conducted. The salts remain in solution, but the "sand" (crystallized sugar) retains a sharp saline taste, which is removed by stirring it with a sufficient amount of very cold water, allowing to settle, and decanting the liquid. The "sand" will then have acquired a bright-yellow, almost white color. It is now filled into a sack from which the excess of water still retained by it gradually drains off. As soon as a sack is filled—which depends on the quantity of whey operated on, and may require from two to eight days—it is carried down into the valley and sent to the refiner, who goes by the usual appellation of sugar-manufacturer ("Zuckerfabrikant"). Sometimes the whole of one summer's turnout of "sugar sand" is sold or contracted for in advance.

The strongly saline, residuary liquids constitute an excellent fertilizer, being rich in potash and phosphoric acid. They contain every inorganic constituent necessary for the growth of plants, and are therefore as perfect a nourishment for the latter, as the milk itself is for man.

The quality of the whey ("Schotte")—which should above all be clear and sweet—the manner of setting the kettles, and the whole manipulation of the boiling, all have a share in the success or failure of the process. It happens not unfrequently that the Alpine operator is compelled to give up the work altogether.

When the boiling is badly managed, the syrup in the kettle throws up foam, its volume, in spite of the continued boiling, becomes greater, and it acquires a darker color. On cooling such a syrup, it yields a jelly-like mass, intermingled with but a small quantity of sugar crystallized in form of grains of about the size of small shot. When properly boiled, 100 liters (26½ gall.) of whey ("Schotte") yield on an average 3 kilogrammes (6 lbs. 9¾ oz.) of washed, drained, and marketable "sand." There is some difference between the amount of sugar obtainable from Alpine whey, and that from low-land whey; the former averaging 3 to 4 per cent, the latter 2½ to 3 per cent in summer, and 2 to 2½ per cent in winter; though, when badly managed, the boiling may yield only ½ per cent or thereabouts.

It frequently happens that the "sand" is sent off quite wet, so that it begins to drip again during the transport. In this case, it still contains from 15 to 20 per cent of water. Since it readily becomes mouldy while wet, it is important that it should reach the refiner as soon as possible. In consequence of the dripping and the evaporation of moisture, the weight of the "sand," when delivered, is always less than when shipped; hence it is customary to settle in the contract where and by whom it is to be weighed. If it is sent by rail, the railway weigher's figures at the place of destination are usually taken as standard.

The price of "sugar-sand" varies, according to the quality and the rate of demand between 70 and 160 francs per 100 kilos (14 to 32 dollars per 220 lbs.)

3. The Refineries of Milk-Sugar.

There are five manufacturers, that is, refiners of milk-sugar, in the Canton of Luzerne, all of them located in the same village, Marbach, where this industry seems to have sprung up originally, and where it has been transmitted as an heirloom in the same families. These manufacturers are at the same time peasants or tavern-keepers, carrying on the manufacture only during the summer, mostly with their own hands or their own people. When they are compelled to employ help, they usually engage a weak-minded or half-witted fellow, for the sake of preserving the secret of their process.

According to the demand and price of the sugar, the manufacturers buy or contract for the "sugar-sand," in the spring, from the Alp-keepers, in larger or smaller quantities, at higher or lower prices, for the ensuing summer. These bargains are concluded with a closeness and secrecy which is quite characteristic of these people: neither the seller nor the purchaser will ever divulge the contract price agreed upon. Neither is the purchase of the refined sugar from these people a simple or pleasant job. To a verbal question: "At what price do you sell?" the answer may be returned: "Likely, you know the price well enough, as you have been around to other manufacturers already."—"How much have you to sell?"—"Think I shall have enough to satisfy you," etc., etc. Moreover, it is quite a task to obtain a sight of a sample.

Besides these aristocrats among the manufacturers, there are perhaps three other, more recently established sugar manufacturers in Switzerland (one of these I have been myself, up to two years ago), who manufacture a purer quality of milk sugar, in whiter and larger crystals, in order to be able to compete with the former.

The old manufacturers produce, together, about 50,000 to 60,000 kilos (110,000 to 130,000 pounds), the new ones perhaps an equal quantity; hence, the total yearly product, in Switzerland, amounts to 100,000 to 120,000 kilos (220,000 to 264,000 pounds), at a value of 200 to 300 francs per 100 kilos (40 to 60 dollars per 220 pounds); sometimes also ruling lower.

Outside of Switzerland, sugar of milk is produced only in scattered localities in Austria, Italy, France, and Germany; but the quantity produced in all these countries amounts to at most only one-third of that produced in Switzerland. A very white milk sugar, "Saccharum Lactis Germanicum," is made in Silesia (Germany), which is, however, said to be, for the most part, recrystallized Swiss sugar. This extra-fine, white article, which used to bring about fifty per cent more in price, is at present almost completely displaced by the first quality of Swiss sugar, which is at the same time cheaper. The Italian manufacture has not been able to survive, in spite of many experiments, and even under the protection of a considerable duty. In the Austrian Alpine province of Tyrol, and in the French province of Savoy, it is carried on but sparingly, not even the home demand being fully supplied. There is a factory in Savoy, working with a Piccard's evaporating-apparatus, in which the steam arising from the evaporation of the whey ("Schotte") is compressed, by means of a pump, in a copper-worm situated in the kettle, where it becomes condensed and thereby gives out the requisite amount of heat for producing an equal weight of new steam from the whey ("Schotte"). Although this system is economical and of advantage in other lines of manufacture, it is unsuited for the preparation of milk sugar. In the first place, it requires a large outlay for steam-boiler, water-power (or steam-engine), and evaporating-apparatus. In the second place, a profit can be expected only if a very large quantity of whey—say 5,000 to 10,000 liters (1,300 to 2,600 gall.) per day—can be expected to be delivered. I say "expected" on purpose, because the delivery itself is connected with further difficulties. To obtain such a large quantity of whey, it must be brought together from a large number of different cheese works, some of them at a distance of perhaps ten kilometers (six miles), which increases the expense. And a single lot of whey from abnormal milk accidentally mixed with the rest may spoil the whole quantity.

According to my own extensive experience, the yield and quality of product depends also a good deal on the kind of vessels used for boiling, on the quantity of whey boiled at one time, and the time consumed in boiling, and I have found that none of the requisite conditions are fulfilled by using Piccard's apparatus. I am acquainted with the latter, through inspecting a factory in the Canton of Freiburg which failed three years ago. This factory was said to be an exact copy of that in Savoy, and only worked for a short time; as soon as capital ceased to find attraction to it, it collapsed, with liabilities amounting to 80,000 francs.

A number of years ago, I established works, at an expense of 5,000 francs, for boiling down a daily quantity of 2,000 to 3,000 liters (520 to 790 gall.) of whey ("Schotte") and refining the sugar, and I kept my works going summer and winter, employing sometimes even the whey ("Schotte") obtained from makers of Limburg cheese. Since my apparatus was built with a view of using steam, I erected them in connection with steam cheese works, saving thereby the special erection of a boiler. My yearly output amounted to 10,000 kilos (22,000 pounds), and found ready purchasers, particularly for the United States. Since my engagement in another branch of technical chemistry, my works and apparatus have remained unused, since I have not yet been able to make up my mind to dispose of my experience.

4. The Refining of Milk-sugar.

Immediately after arrival at the factory, the "sugar-sand" is rewashed, and then allowed to drain. The wash-water dissolves a considerable quantity of the sugar, the latter being no longer imbedded in or enveloped by the saline and sticky mother liquid, as during the first washing by the alp-keeper. Hence the manufacturer does not throw away the wash-water, but recovers the dissolved milk-sugar by boiling down. The extent of washing depends upon the *tint* which the finished sugar is required to possess, a darker tint resulting from short washing, and a lighter tint from repeated washing. If the sand has a brown color, in which case it is usually crystallized in coarse granules, mere washing is insufficient, and a white product can be obtained only by recrystallization. This accounts for the preference which manufacturers show towards those alp-keepers who turn out white and finely granulated "sugar-sand." When the sand has been properly washed and drained, it is dissolved in water, in a kettle set like that previously described, and more of it is gradually added, until the solution has acquired the density most favorable for crystallization. This is not recognizable by the eye as readily as the end of the operation in boiling down the whey ("Schotte"); nevertheless the old manufacturers do not use any areometers. Usually a quantity of dark-colored crystallized milk-sugar (recovered from the mother-liquors) is dissolved at the same time with the other. During solution, a dirty foam rises to the surface, which is constantly removed, until finally only a slightly tinted skin forms on top. In order to insure the more complete separation of impurities, it is customary to add some clarifying substances. As soon as the solution has attained the proper condition of purity and concentration, it is transferred, while still boiling hot, into copper-lined or solid copper vessels, which may be of any size and form.

Discarded cheese-kettles, of a capacity of 200 to 1,000 liters (50 to 260 gall.), are often employed for this purpose; or old stills, or square wooden boxes lined with copper, etc. Smaller vessels, of a capacity of 300 liters (80 gall.) and less, are embedded in wood ashes, whereby the cooling is retarded, and its rate made more regular than

when it is freely exposed. The crystals thus obtained from the smaller vessels will then turn out to be as well formed as those obtained from the larger. For the purpose of getting handsome crystalline groups, it is necessary to provide for a sufficient number of crystallizing "points," which is done by hanging into the liquid sticks of wood of the diameter of a goose-quill, which are stuck, in intervals of about 12 Cm. (4¾ inch.), through holes in a frame laid across the top of the vessel. Concentrated solutions, of course, yield a larger quantity of crystals than more dilute ones. If an equal number of sticks be placed into two solutions differing only in density and contained in equal-sized vessels, the thinner liquid will yield thinner plates of crystals at the sides and bottom and "grapes"* of lesser diameter than the thicker solution. But the product, in the former case, is lighter colored than in the latter. The size of the single crystals, or in other words, the grain, depends on the rapidity of cooling and the clearness of the solution. After about ten days, the crystallization is completed; the mother-liquid is then drawn off, which must be done rapidly, since the motion into which it is put by drawing off causes it to deposit a further quantity of milk-sugar in powder, which is apt to spoil the handsome appearance of the crystals. The sugar is now washed with fresh water, and then dried at a moderate temperature, which must be done thoroughly, otherwise the sugar will become mouldy. The crystalline plates taken from the bottom of the vessels require to be further purified, since they contain at their under surface any impurities which had settled to the bottom before the crystallization began. This impure layer is chopped off the pieces with a hatchet.

The mother-liquid is again concentrated to the crystallizing point, and treated exactly as at first. The second crystallization yields a darker-colored finely crystalline product, which is always re-dissolved along with a fresh lot of crude sugar. The mother-liquid left after this second crystallization is boiled down to "sand;" but this is usually of so impure a character that it must be subjected to a preliminary purification before it can be utilized for obtaining marketable sugar.

All attempts to manufacture crystalline milk-sugar directly from the whey ("Schotte"), on the principle of making loaf-sugar from beet-juice, have failed to lead to practical results. The difficulty is this, that not only the whole of the albumen and fat, but also the milk-salts and the lactic acid must be removed, and that the milk-salts which, by their presence, interfere greatly with the crystallization of the sugar, amount to one-half per cent in the whey ("Schotte"), or to ten per cent of the weight of the sugar itself.†

Still more impracticable appears the proposition to precipitate the milk-sugar in the whey ("Schotte") by alcohol. In the first place, at least *four* volumes of alcohol would be required for precipitating it in *one* volume of whey; and further, the precipitate would be contaminated by accompanying albuminoids, and would, therefore, have to be purified. Besides, a considerable amount of fuel would have to be consumed for the recovery of the alcohol, and more or less of the latter would be lost.

The manufacture of milk-sugar, like that of maple sugar, with which it has many points in common, is not capable of being locally centralized beyond a certain limit. Besides other impediments already mentioned, an additional one is the limited consumption of the product. Until this has acquired much larger proportions, it is probable that the opinion of an old manufacturer, that "Sugar-making is profitable only where the manufacturer is his own workman," will maintain its authority.

BASLE, May 18th, 1884.

* This is the long corn-cob-shaped mass of crystals attached to the sticks.—ED. AM. DRUG.

† One hundred parts of whey contain:

Milk-sugar	4.5 to 5.0
Lactic Acid	0.2 " 0.5
Nitrogenized Substances and Fat	0.5 " 1.0
Salts	0.5 " 0.7
Water	94.2 " 93.8

The spec. grav. of the whey is 1.026 to 1.028.

[ORIGINAL COMMUNICATION.]

DECOLORIZED TINCTURE OF IODINE.

BY R. ROTHER.

THERE probably never was a pharmacist who believed that colorless tincture of iodine retains its original properties unchanged, excepting in its relations to light. But it is nothing unusual or surprising to find others, who entertain such an opinion. At one time this preparation had an extensive demand owing to this misbelief. Being found on trial entirely destitute of the characteristic effects of the regular tincture of iodine, it speedily fell out of use. It is, however, possessed of certain qualities which render it valuable for some purposes, and hence the German Pharmacopœia has given it official recognition. According to this authority it is not prepared by the method originally in vogue. Its process consists in reacting upon iodine with sodium thiosulphate in the presence of water, then adding a slight excess of ammonia and finally alcohol. This form of tincture soon develops a very unpleasant and persistent sulphury odor, which interferes with its more general use. In this country the primitive process was retained, but owing to its several disadvantages, physicians began to prescribe a mixture of sodium sulphite and tincture of iodine. The result of such a combination is sodium sulphate which precipitates, and iodhydric acid, which remains in solution when one molecule of sodium sulphite and two molecules of iodine, that is equal weights of the reagents, are employed, thus:

$$Na_2SO_3 + I_2 + OH_2 = Na_2SO_4 + 2HI$$

When, however, the ingredients are compounded in the proportion of one part of iodine and two parts of the sulphite, which is the case where one drachm of the sulphite is added to one fluid ounce of the tincture, then sodium sulphate, sodium iodide, and sulphurous oxide result, as follows:

$$2(Na_2SO_3) + I_2 = Na_2SO_4 + 2\,NaI + SO_2$$

It is therefore evident that in either case an extremely irritant body is generated; in the first instance, the free iodhydric acid, and in the second, the even more objectionable sulphurous oxide.

These considerations show that the defects of the various methods must first be overcome before colorless tincture of iodine can attain any degree of popularity in medicine.

The writer believes that a solution of this problem is effected by combining the good features of all these methods.

Firstly, iodine is the characteristic and invariable element of all, and therefore, must constitute the basis of the new process.

Secondly, sodium sulphite is the next most important agent, and although slightly variable through oxidation, is perfectly satisfactory, since a sufficiency is indicated by the discharge of color, and an excess is practically excluded from the finished preparation, by its sparing solubility in alcohol.

Thirdly and lastly, ammonia is the necessary requisite to abolish the acidity, and prevent other changes. But the alkali itself is objectionable; firstly, owing to its indefiniteness and the insuperable volume of water it introduces. And secondly, by reason of the fact that, in the presence of free iodine, it gives rise to iodic acid, whose monad salts are insoluble in alcohol. Hence, the carbonate presents itself as the appropriate form which in the condition of bicarbonate leaves nothing to be desired. Since, however, the ordinary carbonate is usually the only available salt, recourse must be had to this. It is generally quite indefinite, owing to the continually increasing proportion of bicarbonate due to the dissipation of ammonia. Consequently an excess above the calculated amount will always be needed. But since the bicarbonate is insoluble in alcohol, in which the normal carbonate and carbamate are soluble, no undesirable excess is liable to occur in the finished tincture. The Pharmacopœia states that the official or ordinary "Ammonii Carbonas" is a chemical compound of one molecule of each of ammonium carbamate and bicarbonate. That it is a single body, and not a mixture is evident from its translucence and homogeneousness. But that it is chemically constituted as officially indicated is doubtful. It is possible enough, but under the circumstances highly improbable, that two such discordant bodies should coalesce to form a double salt. Various chemical considerations, and the conditions under which "Ammonii Carbonas" is formed, show that it has a much more rational and simpler constitution. When calcium carbonate and ammonium chloride are heated together, carbonic oxide (CO_2) and ammonia (NH_3) are produced. These combine to form carbamic acid, which at the moment of its generation unites with another molecule of ammonia, and yields ammonium carbamate. This compound in the presence of water absorbs one molecule of it, and is converted into normal ammonium carbonate. When, however, ammonium carbamate is heated under pressure, one molecule of it parts with a molecule of water to another, and forms ammonium carbonate as before, together with carbamide or urea. Now when urea is subjected to heat, it is converted into ammonia and cyanuric acid, which latter, when further heated, is transformed into cyanic acid without decomposition. But cyanic acid in contact with water is changed into ammonium bicarbonate. We have then in the process for making "Ammonii Carbonas" the precise agencies necessary for the abundant and simultaneous production of urea and ammonium bicarbonate, together with aqueous vapor. Since ammonium carbamate is equivalent to urea and water, the formula of the official salt will be equal to one molecule of urea, one molecule of ammonium bicarbonate, and one molecule of water. Now, although urea is potentially dibasic, it is only known to present one basic affinity. If for convenience we write Ur for urea, and H_2Oc for oxalic acid, the formulas of the nitrate and oxalate will respectively be Ur HNO_3 and Ur_2H_2Oc. Urea forms no carbonate so far as known, but the assumption is valid of its entering into combination to produce a double salt. Hence the official "Ammonii Carbonas" may be formulated as a hydrous carbonate of ammonium, and of urea thus: Am Ur H_2CO_3. Aqu. or $NH_2—CO—NH_2CO_3NH_4$. Aqu. It will be noticed that this formula is in perfect accordance with the simple salts of urea, the amidogen group uniting with the acid molecule, and rendering the nitrogen pentadic just as in the ammonium salts, and salts of the compound ammonias in general. The writer has already applied the termination *ium* to these, as for instance quinium chloride and propylaminium sulphate (*Pharmacist*, January, 1882, and *American Journal Pharmacy*, Dec., 1883), and now also extends its use to the amides. Accordingly "Ammonii Carbonas" is a hy-

drite of ammonium and carbamidium carbonate.

When iodine, sodium sulphite, and ammonium carbonate react in the presence of water, sodium sulphate and ammonium iodide remain in solution, whilst the carbonic anhydrate escapes. The subsequent addition of alcohol precipitates the sodium sulphate, and the tincture then contains only ammonium iodide, and a little normal ammonium carbonate. In preparing the tincture, the alcohol may be added several ounces short of the whole amount, the mixture then be poured into a filter, and followed with alcohol until the desired measure is obtained. In this manner a slight precipitate always occurs when the measure is completed and requires a second filtration. Therefore, the writer prefers to strain out the precipitate and mix it with a sufficiency of alcohol, which on straining off shall complete the measure. From these observations the following practical and expeditious process is deduced, for a tincture containing one troy ounce of iodine in the pint.

Iodine..... ....1 troy ounce
Sodium Sulphite,
Ammonium Carbonate,
Alcohol, ...of each sufficient
Water.....2 fluid ounces

Upon one troy ounce of sodium sulphite, and 200 grains of ammonium carbonate, each previously powdered, pour the water, and then gradually add the iodine until its color is no longer discharged. If now the effervescence has ceased, add ammonium carbonate in proportion to the remaining iodine, but if ammonium carbonate still predominates, then add sodium sulphite in proportion to the surplus of iodine, and continue the incorporation of the iodine until all has been added, and a faintly yellow solution results, whilst some sulphite and carbonate remain in excess. Now gradually add alcohol with constant stirring until the mixture measures 12 fluid ounces. Pour this upon a muslin strainer, press the liquid out, and measure it. Mix the solid residue with enough alcohol to make the measure of a pint when united with the first expression, then press the liquor out, mix it with that first obtained, and filter the tincture through paper.

DETROIT, July 18th, 1884.

Treatment of Sea-sickness.

T. T. REYNOLDS, the surgeon of a transatlantic steamer, speaks favorably of the use of drop doses of the liq. atropiæ sulphatis (Ph. B.) in a teaspoonful of water, and given hourly until the physiological effects of the drug appear. This is serviceable only when used early in the malady, and may be accompanied by drachm doses of equal parts of brandy and iced water, or iced lemonade when there is dryness of throat from the effects of the atropine.

Speaking of the use of the bromides in large doses (90 grains per diem), as recommended by the late Dr. G. M. Beard, Dr. Reynolds mentions several instances in which much harm has resulted; delirium, followed by impotence and incapacity for business of considerable duration, being the most notable results.

Pills of Permanganate of Potassium.

A RUSSIAN pharmacist recommends the following formula:

Vaseline..... 1 part
Paraffin, White wax } of each.. 2 parts
Fuller's earth..... 3 "

Melt the first three together, and add the "white bole" when the mixture is cold. Add to this the permanganate, previously powdered in a mortar, and roll out with a pill machine made of horn or wood.

[ORIGINAL COMMUNICATION.]

Precipitates in Fluid Extracts.*

BY J. U. LLOYD.

IN my last paper I was led to bring forward an experiment, wherein by evaporating a solution of a mixture of the salts, chloride of sodium and chloride of ammonium, a separation of these substances was effected—one (chloride of sodium) being deposited near the bottom of the evaporating dish; the other (chloride of ammonium) being mostly deposited at the surface of the liquid, or even above the surface line, by the familiar creeping process. The examination of these deposits demonstrated that the lower part of the lowest deposit was more than half chloride of sodium, while the upper deposit contained but two-thirds of one per cent of chloride of sodium. The question that presents itself is: Can solutions of salts separate from each other after being mixed? In continuing this subject, I shall confine myself to a phase closely connected with the foregoing experiment. The experiments tabulated herein were made more than a year ago. If I had written this paper before passing to other experiments, doubtless I should have permitted myself to theorize more freely regarding the phenomenon than I care to do at present. As it is, I shall present the experiments, and endeavor to reserve my opinions concerning them for a future day.

It may strike some persons that the present paper is entirely irrelevant to the subject of percolation and precipitation; but if I am permitted to complete this subject, I think that it will be shown that it is intimately connected with certain features that have considerably troubled pharmacists and others.

An unanswered query, once accepted by one of our most prominent members, is directly interested, and the phenomenon presented herein must be considered before that query can be satisfactorily answered. A process of percolation, suggested once, in which the menstruum was directed to be admitted at the bottom of the percolator, and permitted to escape at the top, is also concerned.

Perhaps the analytical chemist will find some food for consideration, as it does not seem unreasonable to suppose that the principle involved in this paper may be of practical value in the separation of certain bodies one from another. Then, too, it may be found advisable to forego the process of filtration, if possible, where accurate results are desired. However, after I have introduced the line of experiments, and the details into which I have been drawn, these features will readily present themselves to those interested.

Let us now revert to the separation of the two salts by the evaporation of the water. The explanation that naturally presents itself is, that their separation resulted from the fact that the chloride of sodium crystallized, and left a mother liquor of chloride of ammonium. This afterward evaporated; and thus the salts were deposited in different locations. In order to test the correctness of the view, I was led to several series of experiments; and a section of one of these may be illustrated as follows:*

Take an ordinary porous blotting-paper, and drop into its centre, drop after drop, some writing fluid. The spot will spread, but it will not present the same appearance from the centre outward. There is usually a dark centre, and then a dark line of demarcation, after which another shade appears, which, after spreading to a certain distance, will perhaps suddenly give place to a nearly colorless liquid. Continue to add the fluid slowly to the centre of the blot, and the shades of color will expand and preserve their individuality, but the outer will usually grow more rapidly than the one immediately within. Sometimes several shades will be formed, but their individual characteristics will be maintained. If the ink be one of the purple or other colors of aniline, or a carmine, it will be generally found that the outer liquid will be colorless. The striking feature is the abrupt change from one shade to the other. It is not a gradual grading off, for a distinct line of demarcation usually separates each shade. I have introduced this experiment because it can be so readily performed, and because, upon second thought, every person must even now admit its familiarity. Mix two colors of ink, say red and blue, and try the experiment again. Very likely it will be observed that, under the same conditions, one color will leave the other after both have passed together for a certain distance, and leave it completely, and by a distinct line of demarcation. Then perhaps this second color will cease to spread, and a colorless liquid will pass out, and form a ring encircling the ink spot.

These experiments may be easily made, and will illustrate the phenomenon; but since there are so many kinds of ink, it is impossible to predict a certain result. Therefore, to enter into the subject more systematically, I will bring forward the following experiment, in order to illustrate a natural phenomenon that I have not been able to find recorded in any work, and upon which those I have consulted can furnish us no information:

Dilute one part, by measure, of officinal solution of tersulphate of iron with thirty-two parts of water; then place a strip of blotting-paper, of loose texture, so that the lower end is immersed in the liquid. A liquid is absorbed, and passes rapidly into the paper, reaching to a height of about half an inch at once. Then it ceases to extend upward as solution of tersulphate of iron, but not as a liquid.† A line of demarcation appears as distinct as though drawn by a pencil, and above this line a colorless solution passes; and this liquid is absolutely free from any salt of iron. If a piece

---

* (Paper read at the Meeting of the American Pharm. Assoc. at Milwaukee, Aug., 1884.)

Query.—"Is there any method whereby a solvent can be perfectly freed from a substance in solution, without evaporating the liquid, precipitating the dissolved matter in an insoluble form, or changing the liquid (as adding alcohol to water).

This question was addressed to several of our foremost scientists, and without any information being furnished as to another known method. In connection with this subject, it is proper to state that for many years it has been known that charcoal will separate certain organic matters from solution; and, according to the experiments of Mr. Witt (1856), it was shown that twenty-two per cent of chloride of sodium was taken from a solution of that substance by filtration through one and three-quarters feet of sand. [Upon this fact also depends, no doubt, at least in part, the purification of brackish or salt water when it passes through a lengthy deposit of sand or through fissures in rocks.] These facts are related to the experiments which follow, and to which we can find none similar on record. Indeed, quotations from our acknowledged authorities show that the phenomenon herein brought forward has been generally overlooked. We will cite as follows:

FILTRATION.—"The mechanical separation of a liquid from the undissolved particles floating in it."—*Ure.*

"The separation of suspended matter is effected on the small scale for laboratory purposes by filtration through porous paper."—*Roscoe and Schorlemmer.*

"The mechanical separation of fluid from solid matters mixed with them. The pores of the paper permit the fluid to pass through; whilst the solid matter, being prevented, remains behind."—*Galloway.*

* I only give enough of the series to demonstrate the one feature to which this paper is devoted. My investigations have extended far beyond the line drawn by this report, but I do not care to impose upon the society by introducing another step, as it would double the length of the paper.

† The texture of the paper influences the height to which the solution passes before the separation. The line of separation is soonest formed when the paper is porous. Very firm, compact paper will carry the entire solution to a considerable height. Common Swedish filter paper will answer, but not so well as blotting-paper.

of ferrocyanide of potassium be drawn over this paper, it refuses to strike a blue color until the dividing line is struck. Other reagents demonstrate conclusively the absence of even traces of iron above this line. Here we have presented a reaction in which a substance in solution has separated from the solvent, without evaporation of the liquid, apparent precipitation of the solid in insoluble form or change in solvent power of the liquid.

In considering this question from the experiment presented, a doubt must arise in our minds regarding the subject. Is it really a separation of a soluble iron salt from a solvent capable of dissolving it? This query naturally occurs when we notice that the upper edge of the iron solution, as it is absorbed by the paper, has a red color, which deepens as it passes upward, until finally the colorless liquid shoots above it. May it not be that an insoluble basic salt of iron is formed by oxidation of the iron, in the very thin layer of liquid? I thus questioned the matter, and found that the line of division formed as readily and the same in an atmosphere of carbonic acid gas. Again, a piece of paper from just beneath the line—indeed, the very edge of the line of division—when dipped into water, formed a solution that gave a deep blue color with solution of ferrocyanide of potassium.

This experiment, then, seemed to show that by means of an agency heretofore unrecognized in this manner, and which seems to be capillary attraction, a separation of solvent from substance dissolved can be effected, and absolutely. In analyzing the phenomenon, we find that there is not a gradual shading off of iron salt from below upward. It might seem natural to view the reaction as an absorption of the iron by the fibres of the paper through which the liquid passed, until finally all the iron disappeared. Upon the contrary, it seems to be a struggling upward of several liquids;* and when the so-called solution reaches a certain height, one part of it is attracted onward with greater force, and frees itself from the others. There appears to be an unequal attractive force between the fibres of the paper and the substances passing through them; there seems to be an unequal and independent capillary attraction between the fibres not moistened and the liquids in contact with them. These forces acting at the same time, cause a separation of solutions at a certain distance from the surface of the liquid; and after this separation is once effected, the liquid that has freed itself from the other, or others, seems to pass freely through it, or them, apparently drawn from above more rapidly than the other, or others, can follow. Thus, although the lower part of the paper is saturated with mixed solutions,† the liquid that has separated itself seems to flow rapidly through the lower stratum and out of the line of demarcation, without a molecule of the iron salt accompanying it.‡

In continuing the study of this phenomenon, we find that the proportion the iron salt bears to the liquid, influences the point at which the separation of the iron solution occurs. If the solution is dilute, the separation takes place just above the surface of the liquid in the vessel. As it increases in strength, the iron passes higher upon the paper, and with officinal syrupy solution of tersulphate of iron there will be no separation.

This fact leads to another point in connection with the subject, to wit: an attraction seemingly exists between the iron salt and the water, which is stronger in proportion to its concentration. Therefore, as the proportion is in favor of the iron, the water has less power to free itself and climb away.

Can it be, then, that capillary or surface attraction has the power to dissociate a solution? If so, it seems to us that this fact must have been overlooked in many instances where its consideration was a necessity to accuracy in results.

In looking at the phenomenon as presented in the foregoing portion of my paper, it will be seen that we may sum the matter up as follows:

1st. The bibulous paper absorbs and carries to a certain height the liquid about as it exists in the vessel.

2d. At a point above the surface of the liquid, determined by the texture of the paper and the concentration of the solution, the iron salt ceases to pass upward* as rapidly as the water or other substances held in solution by the water.

3d. Then the liquids separate, and the colorless liquid is actually drawn (or thrust) through the solution of iron without carrying a trace of ferric sulphate beyond the line of division.

In order to determine the amount of water thus passing through a liquid, I call attention to the following experiment:

A piece of blotting paper was placed with the lower end in a solution of ferric sulphate, made by mixing 1 part of officinal solution of tersulphate of iron with 32 parts of water. The separation occurred as previously described, and when the watery liquid reached the top of the paper (5 inches), the iron solution had ascended but 2 inches. The paper was then divided at the line of separation and at the surface of the liquid, the iron solution in the lower part was weighed with the paper, and the water and paper in the upper portion weighed. Each part was then dried, and weighed again.

RESULT.—Water in the part of the paper that contained iron, 7 grains.

Water in the paper above the line to which the iron had ascended, 7½ grains.

In the same way, one part of solution of tersulphate of iron (ferric sulphate) was mixed with sixty-four parts of water, and the portions of paper examined.

RESULT.—Water in the part of the paper that contained iron, 4 grains.

Water above the line to which the iron ascended, 9½ grains.

Thus it will be seen that, in the first experiment, the water that had separated was slightly greater than that remaining with the iron, while, in the second experiment, more than twice as much water escaped as remained with the iron.

I present also an experiment with acetate of lead, as follows:

Five grains of acetate of lead were dissolved in one fluid ounce of water. The paper was immersed, and the dividing line ascertained by means of a crystal of iodide of potassium. Upon separating the paper, it was found that

The water in the part of paper that contained lead amounted to 8½ grains.

Water in the paper above the line to which the lead ascended amounted to 4½ grains.

In the same way, five grains of acetate of lead were dissolved in four fluid ounces of water.

The water in the part of the paper that contained lead amounted to 5½ grains.

Water in the paper above the line to which the lead ascended amounted to 13½ grains.

All of these experiments uphold the principle that the weaker the solution the quicker the separation, and the larger the amount of the escaped water.

I have mentioned the fact that mixed colored inks separate from each other under the influence of the capillary attraction of bibulous paper. It is demonstrated that certain salts will also do this, and completely. In order to show that they act independently of each other when dissolved in a single solvent, I call attention to the following experiment:

Dissolve five grains of ferrous sulphate in an ounce of water and add one drop of sulphuric acid (to prevent oxidation).

Dissolve five grains of cupric sulphate in an ounce of water.

Mix thirty minims of officinal solution of tersulphate of iron (ferric sulphate) with an ounce of water.

Place a strip of bibulous paper upright in each, and it will be found that, at a certain height, each metallic solution is retarded. This can be readily shown by drawing a piece of red or yellow prussiate of potash down the paper, for the characteristic coloration will appear as soon as the reagent comes in contact with the salt. However, it will be found that they separate at different heights in the papers.

Now mix the solutions, and repeat the paper experiment. When the reagents are applied to the paper, it will be shown that the ferric sulphate extends only a certain distance; then a mixture of ferrous sulphate and cupric sulphate, then the ferrous sulphate alone, and finally a colorless solution passes onward perfectly free from either salt. The boundary line between each salt is clear and sharp.

Upon diluting this mixture with its bulk of water, the rule of the diluted ferric sulphate is found to be maintained, and by repeated dilution of each succeeding solution with its bulk of water, a series of regular demarcations are obtained.

In the same manner, solutions of certain alkaloidal salts can be separated from each other, as, for example, sulphate of quinine and sulphate of berberine, the quinine salt passing onward and leaving the berberine.*

In carrying this series of experiments further, it is readily shown that not only can we separate liquids from each other within the paper, but we can separate them as liquids by acknowledging the fact that a liquid tends to flow from a tube, capillary or otherwise, if the extremity is beneath the surface of the liquid in the container. Two test-tubes were placed beside each other, and into one an inch of solution of ferric sulphate (the strength before named) was poured. A strip of blotting-paper was then so placed that one end reached into the liquid, while the other end rested below it in the other vial. The paper was curved, so that the height was four inches; therefore the liquid traversed eight inches. The exposed part of the paper was covered by means of a sheet of rubber, in order to retard evaporation.

In twenty hours a layer of colorless liquid was carried into the empty vial; and this liquid refused to show a trace of iron by the usual reagents.

---

*Solution of tersulphate of iron contains other substances besides the salt of iron. There are free acids, and they are not retained in accordance with the detention of the iron. The indications are also that the coloration of solution of ferric sulphate is due to accompanying oxide or oxysulphate in soluble form, and that true ferric sulphate has no red color.

†I admit that the term solutions is not in accordance with our present understanding of a solutionof several salts in one menstruum. Authorities do not, we think, view them as distinct liquids mixed together and existing independently of each other, but rather as one solution. For the sake of illustrating these experiments, I shall speak of a solution of different bodies as being an association of separate solutions, each retaining its individuality.

‡There is a gradual and uniform upward motion of all the liquids, however, although the lowest stratum in the paper moves slowest.

*I use the term upward to correspond with this line of experiments. The same phenomenon is presented when the paper is horizontal or inclined, if capillary attraction only carries the liquid outward.

*It is not unreasonable to suppose that advantage may be taken of this principle to separate certain bodies that seem to dissolve and precipitate alike. Indeed, I have used it in separating uncrystallizble coloring matters from crystals of organic bodies, where simply the close wrapping of two or three layers of blotting paper over the moist magma will remove the coloring material as the mass dries out.

Therefore, to sum up from the view presented by these experiments:

The solvent can be perfectly separated from dissolved matter by what appears to be simply capillary attraction.

We must not, however, infer that this is evidence that such a rule will be carried out with other bodies. Experiments with many salts and other substances agreed, but some refused to separate; chloride of sodium being carried to a height of six feet.

I do not design in this paper to enter into a theoretical argument regarding the causes for the phenomenon herein presented. I aim simply to present the facts, and in doing so must consider briefly certain objections that have occurred to me regarding the idea that real solutions can be separated from each other by means of the capillary or surface attraction of materials that have no recognized chemical affinity for either of the constituents. Therefore, as the substances that I have named are all solids, it might perhaps be inferred that the molecules of these solids are held in the minute interstices of the paper, while the more mobile fluid escapes.* Such a view could scarcely be sustained, because mixtures of *liquids* may be separated from each other—indeed, even though such a mixture is supposed to have combined chemically. Sulphuric acid and water are accepted as having rather an intense affinity, and their union is broken only by a considerable display of energy. The mixture of sulphuric acid and water is as perfectly disintegrated by the bibulous paper as were the other substances named by me. This can be shown by making a dilute solution of sulphuric acid in water, and allowing it to pass up the paper, and then pressing a piece of blue litmus paper upon the surface of the part of the bibulous paper that is moistened. The litmus will change to red for a certain distance, defined by a line of demarcation as distinct as that shown by the iron salt.

The facts, then, to be presented in this paper are that:

1st. Liquids can be separated from solids held in solution, without evaporating the liquid or precipitating the solid in an insoluble condition.

2d. Liquids can be separated from each other.

3d. Chemical combinations even can be broken without calling upon such recognized dissociating powers as high or low temperature, or the action of reagents.

This dissociating force has been overlooked in many places where perhaps it might have been useful. It may have been an unknown factor in leading to discrepancies in delicate analytical work that involved frequent filtration. There are other points of interest that I hope to consider in the future.

Manganese in Wines.

In three wines of lower Beaugalais (Vintage of 1865, 1882, and 1883), Maumené found considerable proportions of manganese. It appeared to exist in the wine as double tartrate of potassium and manganese. The proportion of metallic manganese in the wine of 1865 (red), was found to be 5 to 7 Mgs. per litre, corresponding to 51.73 Mgs. of double tartrate. The soil upon which the grapes grow is known to contain much manganese. Further investigation is proposed.—*Bul. Soc. Chim.—J. Am. Chem. Soc.*

Boldo has been found by Chapoleaux to contain a glucoside soluble in alcohol and benzin and insoluble in water which acts as a hypnotic and, when subcutaneously administered, increases the flow of bile.

* It must be admitted that such a view is not in accordance with our idea of a solution.

[Original Communication.]

THE SULPHATES OF BERBERINE.

BY PROF. J. U. LLOYD.

In 1878, a paper on the salts of berberine, as obtained from *Hydrastis canadensis* L., was presented at the meeting of the American Pharmaceutical Association. The writer announced that, when sulphate of berberine is added to ammonia water, by double decomposition, a dark solution of berberine results, which by mixing with alcohol is mostly purified from the sulphate of ammonium which precipitates. Filtration now separates the solution of berberine, and the addition of ether to the filtrate then precipitates the berberine as a lemon-yellow crystalline powder. It is unnecessary to go over the properties of this substance in the present paper, as my object is to call attention to the fact that the substance obtained is not berberine, *but a soluble sulphate of berberine.* The writer has been aware of this fact for some years, but out of deference to an investigator who intended to consider the subject, waited for his report. However, this gentleman, Dr. T. L. A. Greve,* of Cincinnati, having withdrawn from the field, I feel at liberty to make the foregoing statement, and in addition briefly announce the following.

There are two sulphates of berberine and they bear a resemblance to the two sulphates of quinine, excepting that in solubilities they are the reverse of the quinine salts. Thus:—

$(C_{20}H_{17}NO_4)_2H_2SO_4.7H_2O$.—Sulphate of quinine, *less* soluble than the bisulphate $C_{20}H_{17}NO_4H_2SO_4.7H_2O$.

$(C_{20}H_{17}NO_4)_2H_2SO_4$ sulphate of berberine *more* soluble than the bisulphate $C_{20}H_{17}NO_4H_2SO_4$.

The existence of these two sulphates was announced in New Remedies, 1877, p. 226, in a paper by Mr. H. B. Parsons and Mr. T. J. Wrampelmeier, but they simply made the analysis without giving a description of the salts. Since that day, nothing has been printed to support or disprove of their work, and I take pleasure, therefore, in saying that beyond a doubt the two sulphates exist. My own investigations show that such is the case, as well as the analysis of Prof. Virgil Coblentz, who, unaware of the work of Messrs. Parsons and Wrampelmeier, made several determinations of each salt as made by us. His report agrees exactly with that of the other gentlemen.

To sum up:

The original sulphate of berberine, $C_{20}H_{17}NO_4H_2SO_4$, that of the market, is a *bisulphate* and only moderately soluble.

The new sulphate of berberine $(C_{20}H_{17}NO_4)_2H_2SO_4$ is very soluble.

It may not be improper to state that the paper presented to the American Pharmaceutical Association and alluded to in this, was by the writer.

A SPECIFIC GRAVITY BURETTE.

James J. Dobbie and John B. Hutcheson, preparators to the chair of chemistry at the University of Glasgow, have devised a very handy apparatus for accurately determining the specific gravity of solid substances, and which they call "Specific Gravity Burette."

The apparatus consists of a U tube, one of the branches (*A*) of which has a diameter of about 3 millimeters (⅛ inch), while the other (*B*) limb is of wider calibre. A short piece of tube, *C*, of the same diameter as *B*, provided with a glass faucet, is connected with *B*, by means of a rubber-joint, so that it may be easily taken off or replaced.

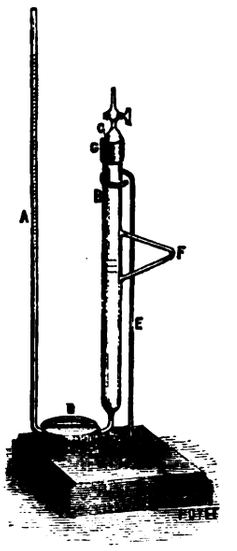
* Dr. Greve accepted a query on the subject at the Indianapolis meeting of the A. P. A., and continued it until last year. He then notified the chairman that circumstances prevented him from attending to the matter, and he was accordingly released.

The apparatus is kept upright by a stout wire *E* and a piece of wood with a notch in which the curve of the U tube rests. Tube *A* is graduated in cubic centimeters and on a level with the bottom mark on this tube, some lines are placed upon the tube *B*, which serve as guide-marks.

The apparatus is used in the following manner. At first the tube is filled with a suitable liquid until this reaches to the bottom mark of graduation in tube *A*. Then, having weighed the substance the specific gravity of which is to be determined, this is introduced into the tube *B*, from which the faucet attachment has previously been removed. The level of the liquid will then rise in both branches. [Of course, the substance must have been brought to such a condition that it cannot retain any air; and the liquid must exert no solvent action upon it.—Ed. A. D.]

The faucet piece *C* is then connected and the faucet having been opened, air is blown in until the liquid in *B* has been depressed below the guide-marks. The faucet is then closed and carefully reopened to let enough air escape until the level of the liquid is at the mark where it was previous to the introduction of the substance.

It is now only necessary to read off the volume displaced by the body, in



Specific gravity burette.

cubic centimeters. The specific gravity is found by dividing the weight in grammes by the volume of displaced liquid in cubic centimeters, *no matter what liquid may have been employed in the experiment.*

In order to facilitate the liquid being brought to the same level again in *B*, Mr. Gray, of Glasgow, has suggested to the authors to connect with the tube a smaller, lateral one, in the form of a > (*F*), which is graduated. The level then can be very accurately adjusted.

The determinations made with this apparatus have been highly exact and concordant.—*Philos. Magaz.* and *La Nature.*

To Prevent Labels on Glass Vessels from Moulding or Peeling off.

Labels affixed to glass (or other) vessels, when exposed to dampness for some time, have a tendency to become stained with spots of mouldiness which is due to a development of fungi on the gummed surface. This may be prevented by adding to the paste a small quantity of borax, about 1 drachm to the quart.

To prevent labels attached to glass from peeling off, it is recommended to use a paste consisting of 2 volumes of flour paste and 1 volume of liquid glue.

Chinese settlers in Mercedes County, California, are reported to be cultivating the opium poppy successfully.

THE ART OF DISPENSING PILLS.*

THE characteristics of well-prepared pills are that they are not too soft, do not stick together nor flatten, that they are smooth and round, all of the same size, and all contain similar proportions of medicinal ingredients.

The preparation of good pills often requires much practical judgment and experience. It is not to be expected that the prescriber should be able so exactly to balance the ingredients that a perfect pill-mass should result, especially as the extracts themselves are likely to vary in consistence. Much better is it that the means of forming the compound into a good mass should be left to the judgment of the dispenser.

[We omit Dr. Hager's descriptions of mortars, spatulas, pill-machines, and the process of making pills.]

Rounding pills with the fingers is only permissible when the mass is of such a character that it crumbles under the rounder. The rounder consists of two pieces made of hard wood, with a handle and a rim of such depth that the pill can be lightly pressed. The rolling-surfaces should not be polished. Several sizes of these rollers should be kept for differently-sized pills. The cut pills are laid on the tray, sprinkled with a little powder, and, being covered by the roller, they are rapidly, and with slight pressure, revolved.

Powder is used to prevent pills sticking to each other, and, to some extent, to conceal their taste. Where no particular powder is ordered, lycopodium should always be employed. Cinnamon, licorice, fennel, orris, starch, etc., are also used. A mixture of 1 part of vanilla with 9 parts of sugar of milk makes a good powder for pills. Ordinary sugar should not be used, as it makes the pills damp.

A pill-sieve is sometimes employed to remove excess of powder.

Pills with hygroscopic, strong-smelling or volatile ingredients should be always dispensed in bottles.

To make pills that will keep their shape for a reasonable time, they ought to contain some fibrous vegetable powder in their composition. Where such is not ordered, the dispenser has often to use it, but, of course, what he uses must be both medicinally and chemically inert.

EXCIPIENTS.

Powdered gum arabic by itself is an excipient of very little value for the purpose of giving consistence; but, with the addition of 10 per cent of pulv. althææ, it becomes a good excipient, helping to form a mass of good consistence, and which binds well.

Pulv. althææ, if used largely, has a tendency, in consequence of its large proportion of mucilage, to prevent the solubility of the pills, and to reduce their activity. Besides, it is apt to make the mass too elastic to work well into a shape, and to harden too much afterwards. Not more than 1 grain to 5 or 10 grains should be used. Three pounds of marshmallow powder require 2 parts of water to form a mass. In large dispensing business the following powders are sometimes kept ready for pills that require a binding excipient:

For White Pills.

Pulv. althææ	10
Farinæ secalinæ	10
Sacch. alb	10
Pulv. iridis	70

M. ft. pulv. subtil.

For Colored Pills.

Pulv. althææ	15
Farinæ secalinæ	10
Sacch. alb	10
Pulv. iridis	50
Pulv. gentian	15

M. ft. pulv. subtil.

Argilla (china-clay) is useful in cases where a vegetable addition might lead to decomposition or oxidation, as, for example, with nitrate of silver, chloride of gold, chromate, bichromate, permanganate, or chlorate of potassium, etc. The white washed variety freed from sand and chalk given a good pill-mass with water; 10 grammes require 3.6 of water.

Powdered white beans are useful, both as regards consistence and binding. For 3 parts, 2 parts of water are necessary.

Powdered orris does not bind, but is useful for giving consistence.

Powdered licorice contains but little mucilage, and therefore is not very binding, but it is a suitable adjunct if licorice is ordered in the pills or to be sprinkled over them.

Sugar without some mucilaginous addition is not good. Syrup, however, with pulv. althææ is very useful.

Starch sugar is often a very serviceable excipient, though it is not generally at hand in convenient powdered form.

Powdered tragacanth is especially to be recommended when the mass is too soft, and when it is desired not too much to increase the weight. If masses crumble, a little tragacanth powder, with a few drops of glycerin, will bind them.

Some years since a glyceride of tragacanth was recommended as a vehicle for pills. It was prepared from 3 parts of tragacanth, 9 parts of glycerin, and 4 parts of water. But it has not proved satisfactory, and pulv. althææ is generally preferred.

Salep is also sometimes used for soft masses when a very slight increase of weight is essential. It is always combined with some pulv. althææ.

Pills with mucilaginous constituents only require watery fluids to make them into masses. Spirit causes them to crumble. Equal parts of glycerin and water are often preferred to pure water to add to pill-masses, on account of the greater plasticity obtained, but the hygroscopic property of the glycerin is an objection.

[For the benefit of younger dispensers a practical summary of the valuable information contained in the foregoing paragraphs may be useful. The main purpose of an excipient is to impart tenacity to the mass, and consequently the one chosen will be moist or dry according to the nature of the other ingredients. 1st. Moist excipients commonly consist of one or occasionally a combination of the following substances—alcohol, extracts (soft), confection of hips or roses, glycerin, honey, mucilage of acacia and tragacanth, soap, syrups, treacle, water, oils. 2d. Dry excipients commonly consist of one or a combination of the following substances — bread crumb, manna, powder of gum acacia and tragacanth, althæa, flour, licorice, orris, starch, sugar, and occasionally, where highly oxidizing chemicals are ordered, an inorganic compound as kaolin. Some of these excipients, such as alcohol and water among the moist excipients, and gum acacia and tragacanth among the dry, occasionally leave the pills very dry and hard, and therefore are not suitable unless combined with some more softening ingredient, such as glycerin, treacle, soap, etc. Other excipients, on the other hand, such as glycerin or treacle, are too hygroscopic, and therefore require to be restrained by some counteracting influence, such as water or one of the gums. A variety of excipients, such as bread crumb, althæa, and tragacanth render the mass elastic and spongy, while others, such as orris, licorice, sugar, etc., do not bind. In short, an intimate acquaintance with the proportion of the various ingredients is in every case necessary, and distinguishes between a pharmacist who has studied his profession and one who merely follows it by rule of thumb.]

[Where fluids require to be added to form a pill mass, it will be always found risky to add them direct to the mass, and as a Salleron's Dropper may not be available, a good plan is to drop the fluid first on to the point of the spatula, and from it to the mortar in quantity necessary to form a mass.]

Pill-masses containing dry vegetable powders require some few minutes to absorb the added water, and, therefore, should be made a little too soft, and allowed to stand for ten to fifteen minutes before rolling, or they are liable to crumble.

If the physician orders a powder with an extract q. s., the dispenser adds the latter little by little; but he is not a neat dispenser if he use the same spatula for scraping the mass from the pestle and to dip into the extract-pot.

If a definite quantity of extract be ordered, the dispenser may find it exactly sufficient to make a mass. If it would make the mass too soft, however, he must, if the extract be an active one, either use it in a drier state or add some inert powder to it. If the extract, however, be of no particular activity, some powder of the same plant may be substituted for a portion of it, as, for instance, if 20 grains of extract of gentian were ordered, he might use 10 grains of extract with 10 grains of powdered gentian.

[The objection to this plan is the variation which it is apt to cause in the size of the pill, 10 grains of extract and 10 grains of the crude powder frequently producing an objectionable increase in the bulk of the pill. The better plan, we think, in such cases is to diminish rather than increase the bulk of the pill, and, therefore, where an extract is too soft, we recommend that it be evaporated to a proper consistence, and for this reason every pharmacist should have some simple and ready appliance for accomplishing this without risk to the extract.]

Sulphate of quinine with extract of gentian makes a mass which, though sufficiently plastic when first used, crumbles when rolled out. The addition of a few drops of acid (10 drops of acid. sulph. dil., or five drops acid hydrochlor., to 15 grains of quinine), with some marshmallow powder, will give the necessary permanent plasticity.

[If the extract of gentian be soft enough, or rendered soft by the addition of water, previous to the quinine being added, no difficulty will be experienced in rolling out the mass. In connection with the suggested addition of an acid, it should not be forgotten that quinine makes a beautiful mass with the addition merely of tartaric acid and water. The following proportions will be found to make a good mass: Quinine sulphate, 30 parts; tartaric acid, 5 parts; water, 1 part. Where a pure white pill such as this is produced, no better dust for rolling them in will be found than fine sifted arrow root.]

Soap powder makes the best pill mass, with vegetable powders, extracts, and gum resins. Soap being decomposed by acid salts, acids, and tannin substances, it is not suitable for masses containing these. In using soap, care must be taken not to add too much water. Soap masses at first appear dry and crumbly, so that the dispenser is tempted to add more water, and then finds afterwards that he has too soft a mass. A few drops of spirits of wine has this effect to a still greater extent, so that it must be used very carefully.

RESINOUS INGREDIENTS IN PILLS.

Gum resins and resins must be first rubbed to a fine powder, and, to pre-

* Abstract from Dr. Hager's work on Pharmaceutical Manipulations. Taken from The Chemist and Druggist of July 15th. The portions in brackets are by the editor of that journal.

vent them from sticking to the mortar, the latter and the pestle may be first rubbed with paper soaked in almond oil. The resinous powder is easily made into a mass with a few drops of spirit, but the pills so made do not keep their shape. To most of such substances, to aloës especially, the addition of a little vegetable powder—marshmallow powder, for example—is desirable. Asafetida gives pills of good consistence, with a few drops of weak spirit; but such an addition with aloës produces pills which flatten. Spirit should be added very cautiously, as it is often found, especially when any soap is present, that, on working, the mass becomes softer than it appeared at first.

[In many cases such, for example, as when it is not advisable to add to the bulk of the mass, spirit is undoubtedly the best medium for converting gum resins and resins into a mass, and, if care be taken, no better need be desired. The main thing to be observed is, not to add too much spirit. The mass, for example, should never be made so soft as those made with ordinary excipients, but should, on the contrary, be so hard as to roll only with some degree of pressure. If this be attended to, they will not fall. Where, however, the pills require to be kept for a length of time, some less drying excipient should be used. In all cases where pills are composed mainly of resins, too much friction with the rounder in finishing them should be avoided. We have had occasion frequently to observe the peculiar effect which smart friction (probably from the heat enveloped) produces on various resinous substances in the way of changing their physical properties, and in many cases the principal cause of pills falling to our knowledge is due as much to the friction used in rounding them with the finisher as to the excipient used.]

For gum resins diluted spirit, and for pure resins 90 per cent spirit should be used. About 5 or 6 drops to 10 grammes is generally sufficient in the latter case. If the resinous mass is crumbly, it is easily worked up with spirit, or with the smallest possible addition of soap powder, but the latter only if metal and earthy salts are absent.

Examples:

	Grammes
Extracti rhei compositi..	4.0
Saponis jalapini.....	4.0

M. f. c. spiritus vini guttis nonnullis massa pil. Ex qua form. pil. No. 60.

This combination would yield a pill mass out of which it would certainly be possible to form pills, but these would soon either flatten or run together. An addition of 1.5 gramme of marshmallow powder obviates this difficulty.

	Grammes
Extracti rhei.....	5.0
Gummi ammoniaci.....	10.0
Aloës pulveratæ.....	7.5
Tincturæ myrrhæ.....	9.8

Ut f. pilulæ 200.

Instead of the tincture of myrrh, which is prepared with 90 per cent spirit, half water and diluted spirit, for each 30 drops, should be used, and this, with the addition of 2 to 2.5 grammes of marshmallow-root powder, gives a plastic pill mass.

In summer it is often found impossible to rub gum resins to a fine powder. In such cases, they should be worked into a mass, after gentle warming in a water bath.

BALSAMS, ETC., IN PILLS.

Pill masses are sometimes required with fluid or soft resins, fluid balsams, oils, or fats, as ingredients. When the quantity of these is too large to admit of the formation of a mass by the addition of any reasonable quantity of powder, recourse must be had to wax. Balsam of copaiba, balsam of Peru, extractum filicis, extract of cubebs, creasote, carbolic acid, ethereal oils, and other substances, melted with gentle heat, with one-third to an equal weight of wax, yield very good pill masses, but the mixture must be quite cold before combination with any other ingredients. The addition of ether or spirit destroys the plasticity of this compound. The wax, with the balsam, etc., must be melted very slowly, as the application of a strong heat would be likely to injure the medicinal properties of the ingredients. It is preferably performed in a porcelain pan, as the thick substance of a pill mortar would require a greater heat and would, besides, cool more slowly. Yellow wax only should be used. The wax should be first gently melted, then an equal weight of balsam added, and subsequently the rest of the balsam, before the mixture has set. Combination of the balsam with calcined magnesia, gum arabic, or yellow resin is not permissible, unless expressly directed by the prescriber; but even when such are ordered, it is generally desirable to add some wax, as even a very little considerably facilitates the preparation of the mass.

Example:

	Grammes
Bals. copaivæ.....	25.0
Cubebar. pulv.....	q. s.

M. Ut fiant pilulæ No. 500.

Yellow wax 12.5 grammes are melted with 10 grammes of the balsam and, before cooling, the remaining 15 grammes are added. When perfectly cool, the mass is worked with about 60 grammes of cubeb powder.

	Grammes
Balsami copaivæ.....	30.0
Cubebarum.....	30.0

M. F. l. a. pilulæ ponderis 0.15.

Pills made from this formula would require an addition of wax, which would necessitate pills of twice the weight indicated. But by taking 25 grammes of balsam and melting with 25 grammes of wax, and then combining with 40 grammes of cubebs, a mass is made which can be divided into 400 pills of 0.2 weight. Such a variation should be carefully marked on the prescription.

In pharmacies where copaiva pills are frequently required, a mixture of 2 parts of balsam of copaiva and 1 part of wax is kept ready; 3 parts of this mixture require 5 parts of cubebs to form a pill mass.

Balsam of copaiva is thickened by calcined magnesia, a sort of soapy combination being formed; but this condition is only acquired slowly, so that twenty-four to forty-eight hours are necessary before pills can be formed. A gentle heat and a few drops of water hasten the thickening. If *Balsam. copaivæ magnesia solidificatum* is not ready prepared, it is made by mixing 10 grammes of the balsam with 6 grammes of the magnesia and 30 drops of water. The mass is put in a porcelain ointment-jar, which is set for an hour in a warm place (about 50° C.), and afterwards removed to a cool place. Generally, good pills can be made from this mixture with some organic powder in twenty-four to thirty-six hours. But it is better to keep the compound ready, and it keeps well in securely covered porcelain vessels. To make the mixture for stock 100 grammes of balsam, 45 grammes of calcined magnesia, and 5 grammes of water are mixed, warmed for an hour, as before, and, after well stirring, set aside for ten days, in which time they make good pills with less than an equal quantity of cubeb powder.

The following substances, with 1 to 2 parts of melted wax and 4 to 5 parts of dry organic powder, yield, after cooling, good pill masses:

Acid. carbolic.	Ol. crotonis
Apiolum	Ol. empyreumat. e ligno fossili
Camphora	Ol. lithanthracis
Coninum	Ol. myristicæ æth.
Extr. cinæ	Ol. myrrhæ
Extr. filicis	Ol. nucistæ
Kreasotum	Ol. picis liquidæ
Leucoleinum	Propylaminum. s.
Nicotinum	Trimethylaminum
Pix navalis	
Pix lithanthracis	
Ol. animale fetidum	

Balsam of tolu cannot be melted with wax, but it can be worked up into a mass with another wax compound, after cooling.

[In all the foregoing instances, and also in some afterwards mentioned, it is to be remarked that the wax is now very much discredited, owing to its insolubility in the stomach. Cacao butter will be found in most instances a much better medium, having a lower melting-point.]

If with a wax compound some vegetable powder containing moisture has to be added, the latter may make the pills crumbly. It is best first to dry the powder, or to take up the moisture by means of tragacanth.

Ethereal oils in small quantities do not much interfere with the formation of pill masses; but when the quantity to be compounded is considerable, they should be melted with wax or with powdered yellow resin to a doughy mass, and then mixed with a vegetable powder. If gum resins or resins are ordered, the ethereal oils can be combined with wax by gentle warming in a test tube.

Caoutchouc pills are best made by evaporating (without any flame, of course) a benzole solution of caoutchouc to syrupy consistence, then combining with so much bole Armeniac as will make a soft mass, rolling on a warmed iron pill-machine, and rounding with the fingers. Vulcanized caoutchuc, of course, is never used.

PHOSPHORUS PILLS.

Phosphorus is best made into pills by first dissolving it in melted wax. The wax is melted in a test tube, the phosphorus, dried on a piece of blotting-paper, is dropped into it, and, by warming and stirring with a clean knitting-needle, is perfectly dissolved. The solution is mixed with an organic powder in a lukewarm pill mortar, and only made into pills when quite cold.

Example:

	Grammes
Phosphori.....	0.2
Ol. amygdal.....	10.0
Ol. cacao.....	10.0
Flor. malvæ pulv.....	q. s.

M. Ft. pilulæ No. 200. Argento foliato obducendæ. D. ad vitr. S. Four or five pills twice or three times daily. —Dr. Tavignot.

Proceed as under:—

	Grammes
Phosphori.....	0.2
Add to	
Ceræ flavæ.....	10.0
Ol. amygdal.....	5.0
Ol. cacao.....	5.0

previously melted (together) and warm under agitation, until the phosphorus is dissolved. Then mix the liquid with fifteen grammes of any vegetable powder. After cooling, make into pills and coat them with silver-foil.

[In connection with phosphorus pills, the numerous articles and formulæ which have appeared in our columns should be consulted.]

PILLS WITH SALTS, ACIDS, ETC.

Substances which are decomposed by iron, such as sublimate, calomel, argent. nit., copper, and bismuth salts, must not be mixed in an iron mortar. Marshmallow root or tragacanth is generally the best excipient. Salts easily soluble in water naturally require very careful addition of moisture. Acetate of potash cannot be kept in pills even in glass vessels. In a very pressing case the dispenser might be

justified in using dry acetate of soda instead. It would, however, be better to inform the prescriber of the difficulty. It might be possible to keep pills fairly containing 1 part of acetate of potash with 3 parts of tragacanth and 1 part of marshmallow.

Tragacanth is generally mixed with salts and the necessary addition of water or of aqua glycerinata added.

Corrosive sublimate in pills should be first rubbed to a fine powder, and then carefully mixed with the vehicle Sugar moistened with a third of its weight of water and then made up with dry powdered crumb of bread is a suitable vehicle. With new bread no water would be necessary. Dzondi's sublimate pills are ordered to be made with 0.75 gramme hydrarg. bichlor., with bread crumb and sugar each q.s., to make 250 pills. The salt should be most thoroughly mixed with 3 grammes of sugar; to this another 10 grammes of sugar should be added, 13 grammes of dried crumb, and 4.5 grammes of glycerinated water, to make 250 pills.

Crystallized salts, fluid acids, soft extracts, with an organic powder, often make a mass of muddy consistence, which rights itself by waiting ten to fifteen minutes. Time should always be given for an organic powder to suck up moisture.

Blaud's and Niemeyer's pills are made by combining 15 grammes each of crystallized sulphate of iron with the same quantity of carbonate of potash. After rubbing the iron salt in an iron mortar the potash salt is added, and a damp mass is formed which is set aside for fifteen or twenty minutes. It is then of a thin muddy consistence. To this is added about three-tenths of its weight of tragacanth and a few drops of glycerinated water, and the mass is set aside for another ten minutes. If it is then at all crumbly a few more drops of glycerinated water may be added, and a good mass will be formed.

[The quantity of tragacanth here ordered, as in some other instances, is much too large. A good rolling mass can be made with a smaller quantity, say one-tenth.]

Bicarbonate of soda and crystallized sulphate of iron prescribed together must be treated in a similar way, only plenty of time and occasional stirring must be given to allow of the development of all the gas.

Pills with acids must be made in porcelain mortars. With the addition of marshmallow powder and glycerinated water good plastic masses are obtained.

Examples—

	Grammes
Pepsini opt.	2.5
Rad. rhei	5.0
Extr. gentianæ	1.5
Acid. muriatici	gtt. 20

(Rad. alth., aq. glycerini, each 0.5.)
M. Ft. pilulæ 100.

	Grammes
Chinidini sulph.	5.0
Cinchonidini sulph.	5.0
Tragacanthæ.	4.0
Rad. gentianæ	8.0
Acidi muriatici	5.0
Glycerini	7.5
Rad. althææ, q.s.	(1.5)

M. Ft. pilulæ 100.

The cinchona alkaloids in pill-masses when first mixed make a soft mass, which becomes hard in twenty to thirty minutes. Muriatic acid being volatile, the pills must be dispensed in bottles.

Glacial phosphoric acid, if not in stock, must be prepared by evaporating five times the quantity over a spirit-lamp to a syrupy consistence, and making up with marshmallow or tragacanth powder. Four parts of acid of syrupy consistence require about 6 parts of marshmallow or 5 parts of tragacanth.

Blancard's iodide of iron pills were formerly prescribed to be made as follows:—Combine 4 g. iodine with 2 g. of powdered iron in 8 g. of water, filter on to 5 g. of honey, evaporate to 10 g., and make into pills with marshmallow and licorice. A shorter and equally good process is to stir 2 g. of iron with 4 g. of iodine in 4 g. of distilled water in a porcelain mortar until the brown color has disappeared. Then mix 4 g. white sugar, 3 g. marshmallow, and 7.5 g. licorice. Make 100 pills, which roll in powdered iron, and dry in a warm place. The dried pills to be varnished with balsam of tolu.

When reduced iron or powdered iron is combined with vegetable extracts containing, as most do, some acid ingredients, the addition of any moisture occasions the development of hydrogen and some oxidation of the iron, and the pills are liable to swell. In such cases the ingredients should be mixed to a soft consistence, set aside and frequently stirred.

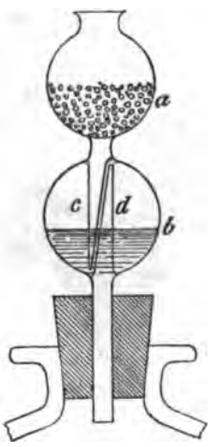
Example.—Pilulæ Aperientes Stahlii:—

	Grammes
Aloes	15.0
Extr. colocynth	7.5
Ferri pul	4.0
Mucilag. g. arab	q.s.

M. Ft. pil. 250.

Quinine pills are likely to crumble, but if an acid and a few drops of glycerin are added a good consistence is retained.

Glycerin keeps pills soft, but, being a very hygroscopic body itself, it cannot be used with other hygroscopic bodies. Glycerin ceases to show this character when it contains at least one-third of its weight of moisture, or when it is mixed with non-hygroscopic organic powders.



AIR FILTER FOR EXSICCATORS.

Many exsiccators are so arranged that, when the cover is put on, the interior air has no chance of equalizing its pressure against that of the external air, and in some cases this is a positive disadvantage, since the sulphuric acid, or chloride of calcicm, over which some substance is to be desiccated, does not easily remove the last trace of moisture from a rarefied space. It is therefore better to have a perforated neck in the cover, and to insert into the neck some contrivance which permits the external and internal air to communicate, without, however, introducing any moisture from without.

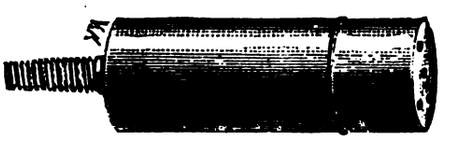
The arrangement shown in the cut and devised by Paul Julius accomplishes such a purpose.

The globe *b* is filled with sulphuric acid, and the globe *a* contains glass beads. If a hot crucible is placed under the exsiccator, the heat expands the confined air and drives some of the sulphuric acid in globe *b* into *a*. When the crucible becomes cold, the acid retreats to *b*, air enters through the tube *c*, passes through the acid and thereby becomes dry, and then enters the exsiccator.—*Zeitschr. für anal. Chem.*, 1883, 525.

The Reddening of Carbolic Acid.

The theme of the reddening of carbolic acid has given rise to many speculations, experiments, and announcements obtained by various observers. The latest paper on the subject is by an author who signs himself G. K., in the *Pharm. Post*, and who comes to the following conclusions, one of which may be new to our readers.

Carbolic acid which acquires a tint or color always contains foreign substances, either introduced during the distillation, such as empyreumatic oils, or copper derived from the still and worm, or subsequently taken up by it. One of the impurities thus absorbed is cobalt, derived from the ordinary blue glass vessels in which is has been supposed the acid should be kept. The author again points out the uselessness of blue glass for preventing changes through the influence of light, and states correctly that *pure* carbolic acid need not fear exposure to light, and that an impure acid will change its tint even when protected by blue glass.



AIR-FILTER FOR WINE-CASKS.

A Manufacturer of Reims, Mr. Berthelot, has recently made a practical application of one of Mr. Pasteur's observations in connection with the keeping of wine. When a package of wine is tapped and provided with a wooden faucet, it is necessary, as every one knows, to bore a hole in the upper part of the cask to admit air. Butlers take care to stop up this aperture with a wooden spigot [or, if the wine is consumed too slowly, either draw off the whole cask in bottles, or refill it from others], for, if it is not closed, the wine turns sour, owing to the germs introduced with atmospheric air. As a substitute for the spigot, Berthelot has devised the filter-bung here shown. It consists of a hollow, metallic cylinder containing a wad of cotton and which is screwed into the bung-hole. The air, in passing through the cotton, is filtered and freed from all its dust and germs, and is thereby rendered innocuous to the wine.—*Scient. Am. Suppl.*

Hippurate of Sodium.

Dr. Gonrod made the observation that hippurate of sodium, when coming in contact with uric acid, caused the latter to decompose [?], and, for this reason, the salt is recommended as a remedy in such diseases which are caused by an excessive production of uric acid in the organism, as in many kidney diseases. The salt is used in form of powder or solution. Peter Boa recommends the following liquid mixtures:

	Gm.		
1. ℞ Sodii Hippuratis	5.0	75	grains
Lithii Carbonatis	1.5	24	"
Glycerini	15.0	½	fl. oz.
Aquæ Cinnam.	240.0	[ad] 8	" "

Dose: 1 fluidounce.

	Gm.		
2. ℞ Sodii Hippuratis	7.5	113	grains
Potassii Citratis	11.5	170	"
Syrupi	24.0	¾	fl. oz.
Aquæ Menthæ pip.	180.0	6	" "

Dose: A tablespoonful.

—*Arch. de Pharm.*

A German Test for Watered Milk consist in dipping a well-polished knitting-needle into a deep vessel of milk, and then immediately withdrawing it in an upright position. If the milk is pure, a drop of the fluid will hang to the needle; but the addition of even a small proportion of water will prevent the adhesion of the drop.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 9. WHOLE No. 123.

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

SEPTEMBER, 1884.

SUBSCRIPTION PRICE per year, ... $1.00

SINGLE COPIES, ... 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

OUR esteemed contemporary, *The Druggist* takes us to task for publishing an original communication on Extract of Cannabis Indica, by Mr. Henry Maclagan, of New York (in our July number, p. 121), in which the author reports that, according to his experiments, the green color of this extract is really due to copper. In reply we would state that the above paper comes from such a respectable source, and the author's experiments have been conducted under such careful management, on behalf of one the first drug-houses of New York, that we felt it our duty, and would always feel it our duty under similar circumstances, to cheerfully give space to such a communication. We cannot be considered responsible for the assertions of new facts of our contributors, as we cannot be expected to verify these in each case ourselves; but while we unhesitatingly reject such communications as in our estimation bear the stamp of improbability or faulty deductions on their face, we feel bound to accept those which come to us from responsible hands. We have no doubt that the author of the paper is amply able to conduct his own cause, and to convince others of the correctness of his assertion, if correct, or to acknowledge his error, if mistaken.

SOME disappointment was felt by many who are interested in the welfare of the National Retail Druggists' Association that so few members attended the meeting at Milwaukee. Indeed, the opening session was delayed for want of a quorum, and at no time was the attendance as great as might reasonably be expected. Western druggists appear to have suffered as yet too little from the conditions which have led to the formation of a protective union to feel the need for it, and the distance to Milwaukee was too great to permit the attendance of many eastern members. The proceedings consisted chiefly of measures to perfect the organization, and the reelection of the officers and active committeemen of last year will doubtless do much towards hastening the enrollment of a large proportion of the retail druggists of the country before the next annual meeting.

John Ingalls,

OF MACON, GEORGIA,

President of the American Pharmaceutical Association.

THERE may be some difference of opinion about the best mode for relieving the present depression of business among retail pharmacists, and the successful plan may not yet be discovered, but there can be but one opinion about the importance of an early organization of the trade, for without it no plan of relief, however well adapted to the circumstances of the trade, can ever be enforced. Any retail druggist who expects to continue in the business is certainly very oblivious to his interests who does not at once become a member of the N. R. D. A. and do what he can to encourage discussion of and action upon the questions at issue.

THE American Pharmaceutical Association has held another of its interesting sessions, and contributed still further to the advance of pharmaceutical science. Although the cutting of prices on patents is considered to be the "burning question" of the day, it is evident that it is by no means so attractive as the discussion of the scientific topics which form the chief purpose of this body. We are unable now to give more of a report of proceedings than a list of officers and committees elected, but our readers will find elsewhere in this number some of the interesting papers which were read.

The President elected has long been identified with the Association and has done much to further its interests in the south-eastern States. He has already served as its Vice-President on more than one occasion.

SOME time since we were requested to furnish a correspondent with information about the manufacture of milk-sugar, an industry which has been attempted in some of the dairy regions of this country, but which, for some reason, had not flourished in a way that one might suppose it would where the by-product of cheese manufacture could be had for almost nothing. We then found the available literature of the subject very unsatisfactory, but have since been able to obtain from a practical Swiss chemist (Mr. J. Cunz) a very full and carefully worded paper on this subject, which we are happy in being able to offer in this number as a guide to such of our readers as may like to experiment in the manufacture of milk-sugar.

THE first issue of the new French Codex having been contaminated with a considerable number of errors, some of which were quite serious, a corrected edition has been printed and been issued. French pharmacists, who were compelled by law to procure a copy of the first edition as soon as issued, now demand of the Government that the second corrected issue should be furnished to them free of charge—a demand which seems quite reasonable, and will probably be acceded to.

THE RELATIONS BETWEEN FLOWERS AND INSECTS.

When the trees in our gardens become covered with their first flowers in the early spring, and when we observe the hive and humble bees, in their feverish activity and their eagerness after loot, making havoc among them, the first sensation we experience is admiration of the grand harmony which has laid a cover for the famished insect world, roused from their lethargic sleep by the warm rays of the spring sun.

But while some may be satisfied with admiring nature, others have gone further and have tried to ascertain whether the plants have thus covered themselves with honey-bearing flowers merely for the purpose of appeasing the appetite of insects. Sprengel (in 1785) was the first to recognize the importance of the relations between the flower and the insect. That which had been timidly advanced by the German Spiritualist, was brilliantly confirmed by subsequent philosophers, and among them there are two who threw the clearest light upon the subject. We mean, of course, Darwin and Sir John Lubbock.

Profiting by the patient and scholarly labors of their predecessors, H. and F. Mueller, Delpino, Axel, Bennet, Hooker, Hildebrand, Ogle, and others, and gifted with a prodigious faculty of observation and power of drawing positive deductions, these two great naturalists did not hesitate to announce a law, as unexpected and bold as it turned out to be lucid and plain, namely, that—with the exception of certain families—most plants can be fertilized only through the agency of insects. The bee alighting upon a male flower becomes covered with pollen which it subsequently carries upon the organs of the female flower, thereby fertilizing it.

These facts showed that the plant, in its evolution, was condemned to obey the great law common to all living beings, namely that of having to struggle for its existence, or in other words, to enter the competition for life. Flowers with inconspicuous corollas or devoid of pleasant odor cannot, as a rule, sufficiently attract the visits of the volatile gourmands and are destined either to die out, or to modify their forms and the quality of their nectar. In fact, there actually exists a rivalry among flowers, as to which shall offer the greatest attractions to invite by the visits of insects.

The flower whorls are disposed in well-arranged zones so as to guide the insect to the place where the nectar is stored. At the same time the stamens gently resist the entrance of the insect, thereby covering the latter with more or less pollen, which is shortly afterwards carried by it to another, perhaps female flower, which had attracted the attention of the individual.

But there are flowers of a peculiar construction which only with difficulty permit an insect to approach the store of honey. It is in these cases that the intelligence of insects is perceived, and as Sir John Lubbock says: "It would be difficult to explain the relations between flowers and insects by assuming the latter to have a blind instinct. H. Mueller relates an instance, where a female humble-bee was observed to carefully inspect an *Aquilegia*. It made several ineffectual attempts to suck out the honey; then, having no doubt recognized the uselessness of its attempts, it set to work making a hole in the corolla. Having thus obtained the honey, it went to other flowers of the same plant, and at once attacked them by perforation, without previously trying to reach down the corolla-tube."

The same facts have been noticed in connection with comfrey (*Symphytum officinale*). Fig. 1, *A*, shows the arrangement of the flower, in which the insect is unable to reach the honey by entering the corolla-tube. But the fertilization of the flower is assured nevertheless. For, if we remember that the bee penetrates the corolla below the stamens, it is quite possible that its long trunk, smeared over with the viscid sap, becomes covered with pollen that has fallen down from the stamens. When the insect next visits another flower, it will usually first examine the natural opening, before attempting to bore through the side. And hence, it will usually effect the fertilization by the pollen falling from its trunk during the first inspection of the flower.

Fig. 2 represents a humble-bee feeding off the flowers of *Linaria*. This has flowers which are almost hermetically closed. The nectaries are at the base of the corolla which is protected by a long spur.

Insects have great difficulty in entering the flower; hence, after having in vain attempted to get at the honey in the usual manner, they prefer to perforate the corolla. And they do this at once when the flowers form a closed bud, impossible to be entered by them (see Fig. 3).

Finally we shall cite a fact which, though not exactly of the same kind, yet is likewise of great interest.

Sprengel has noticed that one of the principal obstacles to the fertilization of monœcious flowers, of their own accord, lies in the fact that the male organs do not arrive at maturity at the same time as the female organs. To make up for this, the insects undertake the task of bringing about fertilization. Such flowers often do not hesitate to adopt strong retaliatory measures against their winged guests.

In Aristolochia, for instance, the pistil ripens long before the stamens. As is well known, the corolla of this flower forms a long and deep tube, with narrow orifice and protected by hairs. These hairs are quite coarse and directed inwards or backwards, somewhat resembling an eel-trap. The small insects, mostly diptera, which enter the tube to feed on the honey, are not in the least obstructed, by these hairs; on the contrary, the direction of the latter seems to point out to them where the nectar is concealed. New arrivals enter from time to time, and the interior of the corolla becomes both dining-room and ball-room. But when the gluttons have gorged themselves, they find themselves unable to escape, the exit being beset by insurmountable difficulties. Possibly, thinking themselves condemned to a perpetual captivity, they regret their revelry and bemoan their fate.

Some fine day or other, however, the pistil has become fully developed and is no longer capable of being fertilized. Then the stamens begin to ripen, and the anthers, when opening, cover the prisoners with a quantity of pollen. This is the signal of deliverance. The hairs, which up to this time had guarded the exit, fall off, and the prisoners are at liberty to escape, carrying the pollen to a new trap, where the same process is repeated.

An arrangement analogous in its effects, though much different in form, is found in the case of *Arum maculatum*. Here the insects are likewise imprisoned during some time for the same purpose, but, according to Sir John Lubbock, after a certain period, the maturity of the stigmas is accomplished, and each one pours out a drop of nectar, no doubt as 'a sort of consolation to the prisoners for their captivity.'

While the insects, on the one hand, know those flowers well which agree with them, and while they restrict their visits to a small number of spe-

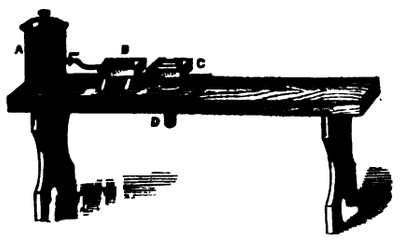
Fig. 2.—Humble-bees feeding on *Linaria*; one by entering the mouth of the corolla, the other by boring through it.

Fig. 1.—Humble-bees feeding on a flower of *Symphytum officinale* L., by boring through the corolla.

Fig. 3.—Abnormally-developed flower of *Linaria*.

cies, the plants, on the other hand, have also their peculiar habits and are well acquainted with their boarders. The so-called sleep of plants is therefore satisfactorily accounted for.

Flowers which are fertilized by nocturnal insects do not need to remain expanded in day-time. In the same manner, those which receive the visits of insects during the day, are thereby advised to close themselves at night. In fact, every moment of time that a flower keeps expanded after its particular insect visitors have retired to rest turns out to its prejudice. It is either exposed to damp air, or to excessive heat, or to attacks by tramp insects, which scatter the pollen without utilizing it. On the other hand, the closed flower has nothing more to fear.—MAURICE MAINDRON, in *La Nature*.



AN IMPROVED LABELLING MACHINE.

MESSRS. DAVENPORT & Co., High Holborn, have lately introduced an ingenious contrivanee in the shape of a bottle-labelling machine, which may prove useful in some businesses. As will be seen from the illustration, the receptacle for gum solution, the pad for transferring gum to the bottles, and the label box are all screwed on a bench, the legs of which are made to fold up for convenience of transport. The *modus operandi* is as follows: The bottle is pressed crosswise on the pad B, which is kept constantly moist with gum from the vessel A; the gum adheres to the bottle, and the next movement in a similar manner on C completes the labelling. A spring in D gives the necessary flexibility for fixing the label, and the machine can be worked with such dexterity that 120 dozen bottles per hour can be labelled effectively.

How to Clean Marble.

A PERSON who has tried many ways for accomplishing the above object thinks the following plan, which he came across in some newspaper, quite the best: Brush the dust off with a piece of chamois, then apply with a brush a good coat of gum arabic, about the consistence of thick mucilage; expose it to the sun or wind to dry. In a short time it will peel off; wash it with clean water and a clean cloth. If the first application does not have the desired effect, it should be tried again. Another method is to rub the marble with the following solution: one quarter of a pound of soft soap, one quarter of a pound of whiting, and one ounce of soda and a piece of stone blue the size of a walnut; rub it over the marble with a flannel, and leave it on for twenty-four hours; then wash it off with clean water, and polish the marble with a piece of flannel or an old piece of felt; or take two parts of common soda, one part of pumice-stone, and one part of finely powdered chalk, sift it through a fine sieve, and mix it with water, then rub it well over the marble, then wash the marble overwith soap and water.

To take stains out of white marble, take one ounce of oxgall, one gill of lye, one and a half tablespoonfuls of turpentine; mix and make into a paste with pipe clay; put on the paste over the stain, and let it remain for several days. To remove oil stains, apply common clay saturated with benzine. If the grease has remained in long, the polish will be injured; but the stain will be removed. Iron, mould, or ink spots may be taken out in the following manner. Take half an ounce of butter of antimony, and one ounce of oxalic acid, and dissolve them in one pint rain water; add enough flour to bring the mixture to a proper consistence. Lay it evenly on the stained part with a brush, and, after it has remained for a few days, wash it off and repeat the process, if the stain be not wholly removed.—*Scient. Am.*

Emulsion of Balsam Copaiba with Tincture of Chloride of Iron.*

BY C. W. PHILLIPS.

RECIPE:

Balsam Copaiba...2 drachms.
Powdered Acacia...1 drachm.
Saccharated Pepsin. 1 scruple.
Tr. Chloride Iron..2 drachms.
Water, q. s. to make 2 ounces.

The peculiarity in the above prescription consists in combining the tincture of iron with an acacia emulsion by means of pepsin. Triturate the powdered acacia, balsam copaiba, and pepsin together; then add one and a half drachms of water, and triturate until a perfect emulsion is formed; dilute with half an ounce of water, and pour into a two-ounce, or perhaps preferably in a three-ounce bottle, to allow room for shaking. Dilute the tincture of iron with the remaining water; add to the emulsion, and shake well. A good, thin emulsion is obtained. A sample made some two years ago seems to be in as good condition as ever. A creamy layer separates after standing, but mixes readily on shaking. The above would seem to demonstrate that while tincture of iron and mucilage acacia may be incompatible, yet in the stomach they would not be so. There certainly can be no objection to adding pepsin to an emulsion; and I believe the above will be found a very useful preparation, and relieve druggists of much embarrassment when physicians prescribe balsam copaiba and tincture of iron together with mucilage of acacia.

Commercial Bromide of Potassium.†

BY PROF. VIRGIL COBLENTZ.

AT the suggestion of the Chairman of Papers and Queries, that samples of the same manufacturer's product should be examined at different intervals of time, samples of 6 American and 2 European manufactures were obtained in original unbroken packages in the summer of 1883; and again the same ones in the spring of 1884, this being done in order to ascertain any differences in quality of different lots issued by the same manufacturer during the year. To judge a manufacturer by the examination of a single sample would be unfair, but to examine different lots of his own make would exhibit the *uniformity* of his own product. Considering the quantity of material that the manufacturers turn out at a time, the two examinations within a year would no more than exhibit the variances of his products. Of the 2 foreign samples, 1 was German, the other English, both in cubes. Of the 6 American, 2 were granulated. The Pharmacopœia requirements being of first importance, are first considered, though afterwards a few unofficinal tests were also applied where it might be thought to be of some interest for comparison. The U. S. P., 1870, and Ph. Germ., 1882, tests were also applied secondarily.

Taken in this order of the Pharmacopœias, we have

1.—SOLUBILITY.

Soluble	1	part	in 1.6	parts of water,	U. S. P., '80.
"	1	"	" 200	" alcohol,	at 15° C.
"	1	"	" 1	part " water,	U. S. P., '80.
"	1	"	" 1.6	" alcohol,	boiling point.
"	1	"	" 2	" water,	Ph. Germ.,
"	1	"	" 200	" alcohol,	1882.

The British Ph. states it to be readily soluble in water, and less so in spirit, but does not give exact proportions.

The solubility of the samples as taken in distilled water at 212° F., and in alcohol (of 97 per cent vol.) at 60° F. The solubility in distilled water was taken by adding the powdered salt in small portions at a time to a definite weight of water while boiling in a flask fitted with an inverted condenser, keeping the proportions of water constant; the addition was continued, till the salt was in slight excess, when the saturated solution was quickly decanted from the residue, which was then thrown upon a tared and moistened filter, dried and weighed; the insoluble residue deducted from total amount used, gave quantity dissolved. The solubility in alcohol was ascertained by digesting an excess of the finely pulv. salt in 20 C.c. of alcohol (97 per cent) contained in a closely stoppered tube, and after standing some time, during which it was frequently shaken, it was thrown on a filter moistened with alcohol, and after filtration, a small portion of alcohol was added to force out any adhering solution; the filtrate evaporated to dryness and weighed.

The solubility in alcohol serves to detect only gross impurities to a certain extent, such as carbonates, iodides, free alkalies, etc. The amount of bromide itself dissolved being about 1 part in 200, the amount of impurities dissolved by the alcohol might be roughly calculated from this.

2.—ALKALINITY.

"Faintly alkaline—single crystal laid upon moistened red litmus paper should not at once produce a violet blue stain (absence of more than 1 per cent of alkali)." (U. S. P., 1880.)

"Its aqueous solution does not affect the color of litmus or turmeric" (U. S. P., 1870).

"A few pieces placed on moist lit mus should not change the color to violet blue" (Ph. Ger., 1882).

The British Pharmacopœia mentions nothing in regard to the reaction.

The lime-water test may also be added to this, the carbonates being detected by the white turbidity occurring upon the addition of a little concentrated solution of the salt to lime-water.

Since the lime-water test does not reveal less than 1 per cent, and is sometimes less sensitive when the conditions are not closely followed, and the other tests being indefinite, a volumetric estimation of the alkali was made, viz.: 3 grammes of the dried salt having been deprived of water by ignition at a strong heat, were dissolved in about 30 C.c. of water in a beaker, solution of litmus added, and then heated to boiling, decinormal solution of H_2SO_4 was run into the liquid from a burette, until a slight excess remained after the continuance of the heat to expel the liberated CO_2, the solution being of a bright red color. The excess of acid is then inversely titrated with standard KOH solution. From the number of cubic centimeters of acid solution, the amount of pure K_2CO_3 contained therein may be calculated, each C.c. of the normal acid solution corresponding to .0692 grams of anhydrous K_2CO_3.

A small per cent of alkali, though a general feature in most all the medicinal bromides, is hardly objectionable from a therapeutic point. It must, however, be remembered that

* Read at the Thirty-second annual meeting of the Amer. Pharm. Assoc.

† Paper read at the Thirty-first Meeting of the American Pharmaceutical Association. (Slightly condensed.)

the presence of any may cause incompatibilities in solutions such as contain alkaloids, iron salts, etc. In such cases, where the salt is supposed to be alkaline, it is best to be first dissolved, tested with litmus, and if the reaction be alkaline, neutralized with dilute H-Cl [or HBr] before adding the alkaloidal salt

3.—BROMATE.

"If dilute H_2SO_4 be dropped upon crushed crystals of the salt, they should not at once assume a yellow color" (U. S. P., 1880).

"When its solution in water is mixed with a little chlorine, . . . chloroform agitated with it, on falling to the bottom, exhibits a red color" (Br. P.).

"If spread in powder form on a porcelain plate, it should not be colored yellow immediately on addition of H_2SO_4" (Ph. G., 1882).

"In aqueous solution it may also be detected by the liberation of bromine upon addition of a few drops of H_2SO_4 dil., imparting a yellow color, which, upon subsequent agitation of the solution with a few drops of CS_2, will be absorbed by the latter." (Hoffmann and Power, Anal.)

The U. S. P. and Ph. Germ., essentially the same, both depend on the immediate coloration of the salt on the addition of H_2SO_4; this test is practically a close one when carefully followed. Of course, the presence of this salt should always be avoided by the manufacturers, and, when present, it is there from carelessness or neglect of proper precautions in manufacture. Since the bromate is well known to be poisonous, though reducing agents do not liberate the free bromine as readily as iodine from the corresponding iodate, as might be possible in the stomach, still as potassium bromide is generally given in much larger doses than the iodide, the presence of more than traces of bromate would render its administration inadmissible.

4.—IODIDE.

"If one gramme of the salt be dissolved in 10 C.c. of water, some gelatinized starch added, then a few drops of chlorine water be carefully poured on top, no blue zone should make its appearance at the line of contact of the two liquids" (U. S. P., 1880).

"A solution of the salt mixed with mucilage of starch and a drop of an aqueous sol. of bromine or chlorine, does not exhibit any blue color" (B. P.).

"A solution of one gramme of salt in 100 C.c. of water should not, after the addition of a few drops of Fe_2Cl_6, impart a violet color to chloroform" (Ph. Germ., 1882).

Bonis recommends adding a few drops of Fe_2Cl_6 to a test tube containsol. of KBr and heating to a gentle ebullition, when the iodine is precipitated, while the bromine remains intact. This makes a very delicate test, even for traces. In performing the U. S. P. test, care should be taken, in adding the chlorine water, not to add too much at once, since in the presence of the iodine, the excess of free bromine liberated may in every case mask the reaction. Advantage of this reaction has been made use of in the separation of iodine from bromide of potassium. The contaminated salt is dissolved in water, and then bromine water is added in small portions at a time to the solution heated to boiling, until it is present in excess. The solution is then evaporated to dryness, thus driving off the iodine. Iodine, though not often an impurity in bromine at present, still might occasionally occur in poor samples, and in this way enter as an iodide in the manufacture. An intentional adulteration with the iodide in any quantity is not probable, considering the difference in the market value, although some years ago the presence of iodides in bromide was of frequent occurrence in the English market—probably added for the reason that the bromide, when containing any iodide, crystallizes in much larger crystals, also enhancing the beauty and appearance of the salt.

5.—SULPHATES (LIMIT).

"On adding to one gramme of salt, dissolved in 20 C.c. of water, five or six drops of test solution of $BaNO_3$, no immediate cloudiness or precipitate should make its appearance" (U. S. P., 1880).

"20 grammes of solution (1 to 20), to which 4 drops of $BaNO_3$ solution have been added, should not become cloudy" (Ph. Germ., 1882).

Should the salt be very alkaline, a drop or so of HCl should be added.

6.—CHLORIDES.

"If three grammes of well dried salt be dissolved in distilled water to make 100 C.c., and 10 C.c. of this solution be treated with a few drops of test sol. of $K_2Cr_2O_7$, and then volumetric sol. of $AgNO_3$ be added, not more than 25.7 C.c. of the latter should be consumed before the red color ceases to disappear on stirring (absence of more than three per cent of chloride)" (U. S. P., 1880).

"When distilled with a mixture of bichromate of potash and sulphuric acid, it yields a red liquid (distillate), which is decolorized on the addition of aq. ammoniæ in excess, but must in no case turn yellow, which would indicate the presence of chlorine" (Ph. Germ., 1870).

The latter test depends on the formation of chloro-chromic anhydride, while the process of 1880 is that in main part first recommended by Baudrimont, the presence of iodides, carbonates, sulphates, and nitrates, in any quantity, rendering the test useless.

An excellent and convenient qualitative test that might do well to apply to a suspected salt before attempting the assay is given by Hager, depending on the fact that bromide of silver is but sparingly soluble in cold dilute solution of ammonium carbonate, while the chloride is freely soluble. A portion of the salt dissolved in water is completely precipitated by $AgNO_3$, washed, digested with cold saturated solution of ammonium carbonate, filtered, and the filtrate supersaturated with HNO_3. The production of a white precipitate indicates chlorides.

It being almost impossible to entirely free the commercial bromine from chlorine without enhancing the cost of it to a great extent, we must expect the presence of some chloride in commercial samples. It seems to be generally accepted that the limit should be placed at three per cent, as given by the Pharmacopœia.

The requirements of the U. S. P. test were applied in all cases, though in some, where there were carbonates, nitrates, etc., present to a considerable extent, the test was considered of no value, and on this account some of the tests were dropped from the table.

Now, if the salt be *pure* KBr, 25.21 C.c. of the silver solution will be required. Since 25.21 C.c. contain 0.4284 gramme of nitrate of silver, then this will react with 0.3 gramme of bromide of potassium:

$$\underset{170}{AgNO_3} : \underset{119}{KBr} = 0.4284 : 0.3$$

If the salt be pure potash chloride, 40.26 C.c. of the silver solution will be required.

The difference in amount of silver solution required for the three decigrammes of the two salts will then be 40.26 C.c. − 25.21 C.c. = 15.05 C.c. Then for *each* 0.1505 C.c. of silver solution required in *excess* of 25.21 C.c., to effect complete precipitation, one per cent of potassium chloride will be present, since 15.05 ÷ 100 = 0.1505.

[*Example.*—If 0.3 Gm. of a sample of bromide of potassium, known to contain only KCl as impurity, should require for complete precipitation 28.5 C.c. of decinormal silver solution—(0.3 Gm. of pure KBr only requires 25.21 C.c.)—there would have been 3.29 C.c. too much of the silver solution consumed. As each 0.1505 C.c. in excess corresponds to 1% of KCl, there must be present altogether 28.1% KCl (3.29 ÷ 0.1505 = 21.8). The sample, therefore, contained only 78.2% of pure KBr. We have used the author's example, but have presented it in a condensed form.—ED. AM. DRUG.]

Those tests that depend on the gravimetric and volumetric estimation of the silver, by weight of silver precipitate obtained, or volume of silver solution required for precipitation, require accurate operations with a perfectly dried salt, and should there be more than one impurity present, their results are of little or no value.

7. ESTIMATION (GRAVIMETRIC).

"One gramme of powdered and dried salt, when completely precipitated by nitrate silver, yields, if perfectly pure, 1.579 grains of dry bromide of silver" (U. S. P., 1880).

"Ten grains of it require, for complete precipitation, 14.3 grains of nitrate of silver" (U. S. P., 1870).

"Ten grains require, for complete decomposition, 840 grain measures of the volumetric solution of nitrate silver" (Ph. Br.).

It will be seen that the U. S. P. of 1870 and 1880 correspond closely; the B. P. test being more of a volumetric than gravimetric test.

In the U. S. P. test, should the solution be pure potassium bromide, the amount of AgBr obtained would be 1.58 grains; should it contain potassium or sodium chloride, the weight, provided the salt is free from other impurities, will be greater in proportion to the amount of impurities present, since the molecular weights of the *others* are lower. This latter forms a kind of check test, which might be applied first, giving an idea as to the nature and proportion of the adulterants, should there be any.

8.—MOISTURE.

Determined by loss of weight when the salt is dried at 100° C. (212° F.).

"When subjected to heat, does not lose weight" (U. S. P., 1870).

"At a dull red heat the salt melts without losing weight" (U. S. P., 1880).

9.—NITRATES.

Bromide of potassium, contaminated to a considerable extent with nitrates, has appeared in the English market occasionally in past years; in view of this, the specimens were examined for this radical. If the salt be free from bromate, nitrates may be detected by the intense yellow coloration, when a portion of the powdered salt is heated to the boiling point with an excess of dilute H_2SO_4; also another test was to precipitate with an excess of Ag_2SO_4 to remove Br, then to test the filtrate by the addition of a crystal of Fe_2SO_4, and H_2SO_4, the development of a brown black color being indicative of nitrates.

10.—SODIUM.

The U. S. P. and Br. Ph. only give means of identifying it as a potassium salt by precipitation with tartaric acid. The Ph. Ger. requires that it should give a violet tint to a colorless flame from the beginning.

The conformity of the samples with the Pharmacopœia requirements are given in the following synopsis, while of those not given, the results are so evident as not to require it.

With few exceptions all the samples are soluble in a lesser quantity of water than that required by the Pharmacopœia, and like results with alcohol,

in which case the less pure the sample the greater the apparent solubility.

Eleven of the sixteen samples examined gave an alkaline reaction, though some were to a very slight degree, and would answer well the practical requirements of the prescription counter, while others should be discarded.

Only one sample gave evidence of bromate in any quantity that should discard it, according to the Pharmacopœia requirements, the two others giving but faint traces. Only one exhibited any traces of iodide, and that was probably present as slight impurity in the bromine.

In eight out of the sixteen samples, no figures for the estimation of chlorides are given, since, as before stated, the amount of carbonates and sulphates present would interfere with an accurate determination, while the remaining ones that are given may be taken for what they are worth, though in these samples the impurities present are hardly in quantity sufficient to interfere with the accuracy of the estimation to any extent.

The largest amount of moisture is found in one of the granulated samples, the two foreign ones being among the least.

Nearly all give the yellow sodium flame at first. It is a very strong requirement on the part of the Pharmacopœia, since the presence of the smallest trace of sodium would give rise to a yellow flame.

On reviewing the results, it is evident that the impurities, with one or two exceptions, are not of such a nature as would give rise to any difficulty as regards their therapeutic application, but many, if not 25 per cent of them at the very least, would be liable to give rise to difficulties when applied to the manifold and often exacting requirements of the prescription counter, the presence of the carbonates, chlorides, and sulphates in some cases not only being annoying to the dispenser, but also seriously objectionable, from incompatibilities that are liable to arise.

Adrian states that of French bromides, among ten samples obtained, only one was found pure, the others containing from 10 to 15 per cent of impurities, one even 35 per cent, these being carbonates, chlorides, iodides, and sulphates.

The eight samples examined, I think, very fairly represent our market as it now is supplied to the retail trade; and two examinations of each maker's product, taken from eight to ten months apart, will allow a fair representation of the probable variations of the quality of his goods. The foreign samples are those put forth by foreign makers of high standing, and it will be seen that three of our American samples stand fully equal to, if not better in some particulars, than the European (Nos. 4 and 8).

Of the two granulated salts, one averages very well, and sustains the claim as to its quality, while the other is not much better than the poorer samples.

Since bromide of potassium is usually given in much larger doses than the corresponding iodide, and in some instances frequently in large quantities, it is of considerable importance that it should be dispensed in a reasonably pure state, free from admixture with other salts or foreign substances which might produce powerful effects upon the system. Therefore, while considering the average quality of our supply of this salt to be *very fair* (though some of our so-called reliable brands are better than this), it behooves the buyer to exercise some care in his selection, in order to obtain a medicinal salt meeting the pharmacopœial requirement. Too often are these all-important points overlooked, and the quality of the salt disregarded in order to meet the lowest market figure. The manufacturers need the encouragment of an intelligent appreciation on the part of the retail pharmacist in order to raise the standard of their products.

Considering the strong and wide-awake competition, characteristic of these later days, should we not ask manufacturers to stimulate the demand for a better quality of their own products? It is obviously the duty of pharmacists of to-day to lend encouragement by placing a premium on the best medicines, thus encouraging the manufacturers in their efforts.

Results.*

Solubility of 1 part in....parts of water at 100° C. I, 0.907; 0.946. II, 0.986; 0.948. III, 0.965; 0.943. IV, 1.11; 1.08. V, 0.931; 0.942. VI, 0.986; 1.02. VII, 0.991; 1.01. VIII, 0.921; 0.932.

Solubility of 1 part in..parts alcohol (97% vol.) at 15° C. I, 153.5; 161.4. II, 178.7; 159.8. III, 168.2; 160.1. IV, 172.1; 167.2. V. 180.1; 120.2. VI, 127.8; 133.2. VII, 116.8; 114.2. VIII, 199.5; 199 1.

Reaction, U. S. Ph. '80. Color to litmus.
I, Slight alkaline; strong alkaline, II and V, Both neutral. III and VII, Strong alkaline: alkaline. IV and VI, Both alkaline. VIII, Neutral; alkaline.

Reaction, U. S. Ph. '70. Color to litmus.
I and III, Blue; deep blue. II and V, Both no change. IV and VII, Both deep blue. VI, Deep blue; violet blue. VIII, No change; deep blue.

Reaction, mixed with lime water.
I and VII, Cloudy; precipitate. II and V, Both clear. III, Cloudy. IV and VI, Both faint cloudy. VIII, Clear; faint cloudy.

Alkali. Volum. estimation of K_2CO_3, in per cent.
I, 0.92; 1.01. II, 0.02; 0.01. III, 1.47; 1.38. IV, 1.21; 1.37. V, 0.06; 0.02. VI, 2.07; 3.10. VII, 1.09; 1.15. VIII, 0.011; 0.018. (Standard only II. V, VIII.)

Bromate. Dil. H_2SO_4 on Pulverized Salt, U. S. P. '80.
I, II, III, V, VII, VIII, both no color. IV, no color; light yellow. VI, yellow; no color.

Bromate. Aqua Chlori and Chloroform added (Br. Ph.).
I, III, V, VIII, Both no color. II, IV, and VII, No color; pale straw color. VI, Deep yellow; no color. (I, III, V, VIII, are standard.)

Iodides. Solution 1 in 10, with starch, U. S. '80.
I, II, III, IV, V, VII, VIII, Both no color. VI, No color; faint bue.

Iodides. Solution 1 in 100 with F_2Cl_6 and chloroform. VI, No color; faint blue. Others: No color.

Chlorides. Per cent.
I, IV, VI, VII,? II. 5.3; 6.6. III, 3.3; 8.6. V, 4.2; 4.6. VIII, 4.1; 4.9.

Sulphates. Addition of Barium nitrate, U. S. '80.
I, II, V, VII, clear. Others: not quite standard, part being cloudy or faint cloudy.

Moisture. Loss, at 100° C., per cent.
I, 0.3; 0.2. II, 0.2; 0.5. III, 1.5; 1.2. IV, 0.9; 0.4. V, 0.7; 0.5. VI, 1.1; 0.4. VII, 1.2; 0.9. VIII, 0.4; 0.6.

Estimation, gravim. 1 Gramme, precipitated by silver nitrate, as Ag. Br.
I, 1.58; 1.60; II, 1.578; 1.612. III, 1.48; 1.587. IV, 1.581; 1.585. V, 1 159; 1.602. VI. 1.99; 1.65. VII, 1.581; 1.579. VIII, 1.586; 1.592.

Sodium, presence of, by flame test, Ph. Germ.
I, IV, VII, VIII, both samples give yellow at once. II, VI, both give violet (K) at once. III and V, yellow; violet.

Potassium, identification of base as such in all samples.

Nitrate, presence of. Boiling with H_2SO_4. One sample contained traces.

Prof. Robert E. Rogers, of Jefferson Medical College, has resigned the chair of chemistry.

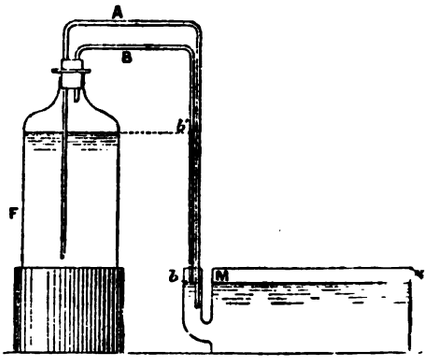
Fluid Extract of Serpentaria is said by Mr. T. S. Wiegand (*Am. Journ. of Pharm.*) to be an efficient antidote to rhus poisoning when applied on cloths and without friction.

*[To save space, we have recast the author's table, giving, however, all of his data. As there were two different samples examined of each manufacturer's product, we have placed a semicolon (;) between the data referring to the two samples of one maker. —Ed. Am. Drugg.]

WATER-BATH WITH CONSTANT WATER LEVEL.

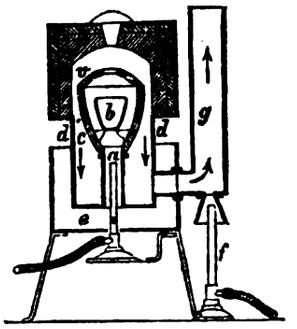
Dr. Eugene Mascareñas y Hernandez uses the below-described apparatus for preserving a constant water-level.

The water-bath is provided with a lateral neck, communicating with the interior of the water-bath. In the cut this neck appears to be situated close to the water-bath itself. It would, however, be an advantage to have it project out a short distance horizontally from the bottom of the vessel, before it turns upwards. This would avoid the interference of the glass tubes with



the edge of any larger-sized capsule placed on the bath.

The reservoir for water is a bottle tightly stoppered and through the stopper of which two glass tubes pass bent twice at right angles, one of which terminates just below the stopper, and the outer limb of which ends at the exact level at which the water in the bath is to be kept, while the other tube extends to the bottom of the reservoir with one limb, and with the other to some distance down the neck of the water-bath. As soon as the siphon (tube *A*) has been started, the water will flow from the reservoir until the end of the tube *B*, at *b*, becomes closed by the water, when the flow will cease, to begin afresh as soon as the level sinks.—*La Nature.*



GAS-FURNACE FOR HIGH TEMPERATURES.

H. Roessler describes an improved gas-furnace, of small size, for producing high temperatures in laboratories. It requires only two ordinary Bunsen burners for producing heat and draught. Its construction is very simple, as will be seen from the accompanying cut, which represents a section of the furnace.

The air which supplies the burner enters at *d* and *e* where it becomes heated before entering the burner and before ascending alongside of the latter. The combustion of the mixed gas and heated air takes place inside of the inclosed space *c*, and the products of combustion escape at *v*, passing down at the outside of the mantle *c*, and thereby utilizing the heat to the utmost extent. A constant draught is produced by the burner *f*, which causes an ascending current through the chimney *g*.

This furnace, if well regulated, will melt silver in 15, gold in 20, and a mixture of 90 parts of gold and 10 of platinum in 40 minutes.—*Dingl. Pol. Journ.*

Hydrastine.*

BY PROF. FREDERICK B. POWER, PH.D.

HYDRASTINE was observed by Durand, of Philadelphia, as early as 1851, but was not obtained in a pure state. It was afterwards studied by J. D. Perrins, of Worcester, England (1862), and subsequently (1863) more fully by Mahla, of Chicago, who assigned to it the empirical formula $C_{22}H_{24}NO_6$, which was recalculated by Kraut into $C_{22}H_{23}NO_6$.

Professor Power's investigation was undertaken to verify this formula. The alkaloid was prepared for him by Professor J. U. Lloyd, of Cincinnati, in a very pure state, by the following process:

One thousand pounds of powdered Hydrastis canadensis were properly moistened with alcohol, packed in a suitable percolator, and percolation then conducted with the use of officinal alcohol as a menstruum. Sulphuric acid, in strong excess, was added to the percolate, and, after four hours, the supernatant liquid filtered from the mass of crystals of sulphate of berberine ($C_{20}H_{17}NO_4.H_2SO_4$). To this filtrate ammonia water was added until it showed but a slightly acid reaction, then strained to separate the precipitated sulphate of ammonium, distilled to a syrupy consistence, and the residue poured into ten times its bulk of cold water. After twenty-four hours, the precipitated resinous substances, oils, etc., were separated from the liquid by filtration, the filtrate being an impure solution of sulphate of hydrastine. Ammonia water, in decided excess, was then added to this resultant liquid, and the precipitate of impure hydrastine collected and dried. It was then digested with one hundred times its weight of cold water, to which sulphuric acid was carefully added to *slight* acid reaction, and, after twenty-four hours, filtered. The filtrate was again precipitated with excess of ammonia water, the precipitate collected on a strainer and dried. This precipitate was powdered and extracted with boiling alcohol, from which impure, dark-yellow crystals of hydrastine separated when the alcoholic solution was cooled. The crystals were purified by repeated crystallization from boiling alcohol. In order to obtain the hydrastine perfectly colorless, when in the form of large crystals, many crystallizations are necessary. Small crystals appear to be white, when in reality they are considerably colored, and which is partly due to the fact that they are prone to become opaque from the presence of numerous fractures.

PHYSICAL PROPERTIES OF HYDRASTINE.

The crystals of hydrastine which apparently belong to the ortho-rhombic system, are anhydrous, and, when pure, perfectly colorless and very brilliant. They fuse at 132° C. (Mahla, *loc. cit.*, states 135° C.) to a light amber-colored liquid. When heated on platinum foil they decompose with the evolution of empyreumatic inflammable vapors, reminding, as Mahla had previously observed, somewhat of carbolic acid, and leaving a large amount of ash, which burns slowly away at a red heat.

Hydrastine is insoluble in water and in petroleum benzin, these liquids leaving, after prolonged contact with the alkaloid, no perceptible residue upon evaporation, and the aqueous liquid is not affected by potassio-mercuric iodide; it is soluble, however, in dilute acids and in chloroform (in 1.75 parts), benzol (15.70 parts), ether (83.46 p.), and alcohol (120.27 p.), and, of course, much more freely soluble in these liquids when hot.

Its specific rotary power is (α) D = − 170°.

Chemical Properties:

The crystals of hydrastine are affected in the following manner by reagents.

Concentrated sulphuric acid produces a yellow color, which, in contact with a crystal of potassium bichromate, becomes brown.

Concentrated sulphuric acid, on warming, produces a bright-red color.

Concentrated nitric acid produces, in the cold, a yellow color, changing to reddish-yellow.

Concentrated hydrochloric acid gives no coloration, either in the cold or upon warming.

Concentrated sulphuric acid and molybdate of ammonium gives an olive-green color, which appears to be its most characteristic test.

The solution of the hydrochlorate is affected as follows by reagents.

Ammonia water and the fixed alkalies give a white curdy precipitate, sparingly soluble in excess; potassium iodide, potassio-mercuric iodide, potassium ferrocyanide, potassium sulphocyanide, mercuric chloride, and tannic acid produce white precipitates; iodine in potassium iodide, a light-brown precipitate; potassium bichromate, a yellow precipitate; picric acid, a bright-yellow precipitate; platinic chloride, an orange-yellow precipitate; auric chloride, a deep yellowish-red precipitate.

The ultimate analysis of the alkaloid was performed by its combustion with oxide of copper, in a tube provided with a glowing copper spiral. . . .

The figures obtained in the analysis confirmed the correctness of Mahla's formula.

The *hydrochlorate of hydrastine* is uncrystallizable (so also described by Mahla). Its composition is $C_{22}H_{23}NO_6$. HCl.

The *sulphate* which Prof. Power first prepared is also uncrystallizable, of a light-brownish color, affording a nearly white powder. Its composition is $(C_{22}H_{23}NO_6)H_2SO_4$.

It should be stated here that the *crystallized* sulphate of hydrastine advertised by some manufacturers is simply the acid sulphate of the yellow alkaloid berberin [$C_{20}H_{17}NO_4.H_2SO_4$], to which the name hydrastine is persistently misapplied.

The nitrate is, like the previously described salts, uncrystallizable, the acetate is permanent only in solution, decomposing on evaporation. Attempts to prepare a crystallizable salt containing organic acids were fruitless, since the alkaloid invariably separated. It follows, therefore, that hydrastine is a very weak base, and does not form crystallizable salts.

A commercial preparation termed "soluble citrate of hydrastine," appearing as a yellowish-gray amorphous powder, very soluble in water (with exception of a little resinous residue), was found on examination to be a mixture of about one molecule of the alkaloid and fifteen molecules of citric acid; the large excess of the latter, therefore, is the cause of the ready solubility.

Prof. Power obtained from hydrastine a compound analogous to hydroberberine, namely "hydro-hydrastine," which has, however, not yet been fully examined. At all events, its hydrochlorate was found to contain the theoretical proportion of hydrochloric acid. [Calculated for $C_{22}H_{23}NO_6.HCl$. 8.34% of HCl. Found: 8.31% HCl.]

With iodine and bromine, hydrastine also enters into combination; with the former it forms a crystalline compound.

From the circumstance that, by heating hydrastine with ethyl iodide for several hours, a compound is formed in which one atom of the hydrogen of the alkaloid is replaced by one molecule of ethyl, it may be inferred that hydrastine is a secondary base or so-called imide, in which respect it is analogous to berberine.

In concluding this investigation, a few words may be said regarding the supposed third alkaloid of Hydrastis canadensis, the so-called *xanthopuccine*. The presence of such an alkaloid was first intimated by A. K. Hale, afterward confirmed by John C. Burt, and finally by Herman Lerchen, who endowed it with a name. The very peculiar properties, for an alkaloid, which were ascribed to this substance by Mr. Burt, would render it extremely interesting, since he states that "the hydrochlorate solution gave with ferric chloride a dark brown to black solution, and with potassium ferrocyanide a greenish-blue solution, while the fact of its precipitating lead acetate is not quite so remarkable, in view of the sparing solubility of lead chloride."

With a desire to examine this substance more carefully, I applied to Prof. Lloyd for a specimen of it, and was not greatly surprised to learn from him that in working upon thousands of pounds of Hydrastis, he had never been able to obtain it.

* Abstract of a Paper read at the Meeting of the Amer. Pharm. Assoc., at Milwaukee, August, 1884.

Proportion of Water of Hydration in commercial Sulphate of Quinine.*

BY HENRY B. PARSONS, NEW YORK.

THE following percentages were determined by drying one gramme of the quinine sulphate in a water oven, for three hours. Repeated trials have proven that all the moisture is expelled by this treatment.

Brand.	No. Samples.	Average % Moisture.
1. American	16	13.72
2. "	184	12.61
3. German	12	12.32
4. "	684	14.09
5. Italian	199	14.36
Av'ge for all	1015	13.84

The writer has observed that the differences above noted in the amounts of crystal water in the five brands here reported is tolerably constant and characteristic for each brand. With careful handling and no more exposure to the air than is necessary, quinine sulphate will contain almost exactly seven molecules of crystal water $7H_2O$ equivalent to 14.45 per cent. But if facilities for drying are not the best, and if workmen are careless and leave the sulphate exposed to the air for too long a time, the amount of crystal water will be less than seven molecules, and is likely to vary considerably in different lots.

This statement is applicable to the brands here reported as No. 1 American and No. 3 German. No. 2 American showed much less variation for different lots; the appearance of the crystals was unlike that of all other brands. The amount of crystal water so closely aproximated six molecules, $6H_2O$ of 12.53 per cent, as to raise the question whether the manufacturer, by some particular method of crystallization, did not originally produce this salt rather than the one containing seven molecules.

The brands reported as No. 4 German and No. 5 Italian were very constant as regards their content of crystal water; it will be noted that they contained, approximately seven molecules or 14.45 per cent. Not infrequently twenty or more samples would be examined at one time, of which not one sample would contain less than 14 per cent of water of hydration, and not one sample more than 15 per cent.

Each sample here reported represents 100 ounces of quinine sulphate, taken from an original can, not previously opened. These determinations of crystal water were made previous

* Paper read at the meeting of the Amer. Pharm. Assoc., at Milwaukee, Aug., 1884.

to the application of Kerner's test as directed by the U. S. Pharmacopœia.

The average percentage of moisture found in the 1015 samples, of five makers, has been stated as 13.84 per cent. This is a trifle more than 6½ molecules, which requires 13.56 per cent. There are numerous interesting questions connected with this subject, which, it is hoped, may be considered in any discussion which may arise in consequence of the reading of this paper.

One question which the writer would suggest, and upon which an expression of opinion is desirable, is based upon the following facts. It is well known that ordinary quinine sulphate rapidly loses its crystal water when exposed to the air, until only two molecules, or 4.6 per cent of combined water remains, but when this point has been reached, the salt neither gains nor loses moisture to any appreciable extent, even if it be freely exposed to the air. In view of the definite and stable character of this two-molecule salt, would it or would it not be advisable to adopt it in the next (7th) revised edition of the U. S Pharmacopœia?

As this question is hardly germane in this paper, it is merely suggested as one which may lead to profitable discussion in connection with the results here offered.

Fig. 1

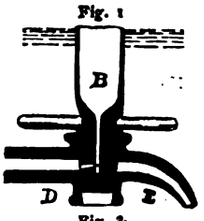
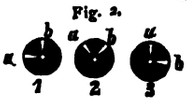


Fig. 2.



IMPROVED BURETTE STOP-COCK.

SELF-FEEDING burettes are usually so arranged that they may be filled from the reservoir containing the stock-reagent, by merely pressing a pinch-cock. One method of accomplishing this is shown in the cut illustrating the overflow pipette described in our last number (p. 148). Pressure on one pinch-cock fills the burette, and pressure on the other allows the liquid to drop or run from the latter.

This arrangement is sufficiently simple and handy to satisfy most operators. Nevertheless, it might be considered an improvement, in the estimation of some, to replace the two pinch or stop-cocks by a single one. This has been done by Ephraim Greiner, of Stützerbach (Thuringia), who has patented the glass stop-cock here illustrated.

B is the lower end of the burette. The faucet with which it is provided sits in a tube one side of which, *D*, is connected with the reservoir containing the standard solution, while the opposite branch, *E*, ends in a downward nozzle from which the liquid runs into the vessel placed below. The body of the glass faucet is perforated, not in the direction of its diameter, but in that of two radii inclosing a quadrant.

When the faucet is turned in the position shown in 1, the liquid in the reservoir will flow into the burette, and as soon as it has reached the desired level, the faucet is slightly turned, until it stands in the position 2, in which case all the passages are closed. On turning it now further, into the position 3, the liquid will run from the nozzle, until it is turned back to position 2.

Canutillo.*

BY J. W. COLCORD.

EARLY in the spring of the present year, in the course of a correspondence with Dr. S. Gleason, of San Antonio, Texas, in reference to the cultivation of foreign medicinal plants in that vicinity, he offered two samples of a shrub plentiful there, that had interested him. He describes it as a shrub growing to the height of from three to four feet, densely branched above—branches ternate, smooth, leafless, or the leaves reduced to small subspinous petal; flower-buds axillary, either opposite, or in whorls of 3 or more, downy, calyx of 2 or 3 scaly sepals.

Whether it has a corolla or not he neglects to state; but I judge from appearance that it must have a small yellow blossom. In the course of his practice he says he has found Canutillo (pronounced Can-a-teelyo) to be used extensively by the native Indians and others resident in that section, in the treatment of gonorrhœa, mucal inflammation of the urethra, leucorrhœa, renal diseases, etc., and when bruised is frequently used as a vulnery and styptic.

As used for internal administration, it was given in the form of an infusion, the dose being a teacupful 3 or 4 times a day.

As this method of administration is manifestly inadmissible for use in our pharmacies, I made the experiment of preparing a fluid extract from a pound or more of the stems received by mail some time in March, promising the doctor that I would communicate the results of my experiments both therapeutically as well as pharmaceutically.

The fluid extract, as prepared by me, of which I submit a sample, is in color a reddish dark brown, in taste sweetish, aromatic, and astringent.

I have called the attention of several of the physicians in my neighborhood to it, and they have prescribed it.

I have also had a trial made of it in the hospital. The dose that I recommend is a teaspoonful 4 times a day. In each case, as far as I can learn, the results have been satisfactory. One patient reported a case of gonorrhœa cured by it alone in three days, using but one ounce of the extract.

Dr. Gleason states that he can, from the results of his experience in using it, almost claim that is a specific in this disease. Whether further trial shall confirm or refute the present good opinion I have formed in regard to its therapeutic value, time and the judgment of others must determine. I take pleasure in submitting for your inspection a sample of the dried shrub.

I have consulted a large number of authorities to obtain the botanical name, but so far have been unable to find anything answering its description.

Canutillo is derived from the Spanish Cana, meaning a litttle reed or stem. A sample sent to the Herbarium at Cambridge, asking information as to its classification, elicited following response: "Your shrub is an Ephedra (apparently Ephedra trifurcata), now common on our Southern borders. All our species of Ephedra are popular local remedies in syphilitic complaints."

I sent a specimen to Mr. E. M. Holmes of London, with a similar request for information, particularly as to whether a trial had ever been made as to the therapeutic value, but so far have received no response. It seems to me to be worthy of a further trial. And if any member desires to make a trial, I have no doubt but that supplies could be obtained of Dr. Gleason, at small expense, on application.

* Paper read at the meeting of the Amer. Pharm. Assoc., at Milwaukee, Aug., 1884.

Artificial Oil of Wintergreen.*

BY ADOLPH W. MILLER, M.D.

"GOOD authority states that artificial salicylic acid is now used in making oil of wintergreen, and that this artificial oil is cheaper than the natural. To what extent is this true?"

This query may be very briefly answered in the negative. Inquiries and investigations pursued for the past year in various ways among the most extensive and reliable dealers in essential oils have failed to furnish the slightest evidence of the correctness of the above statement. It is quite true that the trade lists of several of the larger manufacturers quote "Salicylate of Methyl," but it is always at an advance on the price of the oil of wintergreen. This salicylate of methyl is freely admitted to be artificially produced from wood alcohol and salicylic acid. The small demand which has sprung up for this article seems to be entirely due to the publication of a number of absurd formulæ for artificial flavoring extracts in the United States Dispensatory, in which salicylate of methyl forms one of the numerous ingredients.

At the present high price of salicylic acid, and the comparatively low rate of oil of wintergreen, it would hardly pay to substitute the artificial for the natural product. It is not to be denied, however, that this obstacle would not prove to be a barrier to the industry in the hands of the firm which holds the monopoly of Kolbe's patent for making salicylic acid, as additional large amounts of this article could thus be disposed of. The price realized would no doubt afford a liberal profit to this firm, though it would be unremunerative to those who have to pay a heavy royalty on the manufacture of the acid. On the other hand, if the price of oil of wintergreen should at any time advance to about $3 or over, this might prove to be a sufficient inducement for others also to substitute the chemical product for that of Nature

Comparative Accuracy of the Official Methods of Opium Assay.*

BY WM. W. BARTLET.

THE subject of the assay of opium has been so ably treated by Prof. Prescott, Dr. Squibb, and others, that there seems to be but little left to suggest or discuss. This is a very important subject to pharmacists, especially so to those who reside in States that have passed stringent adulteration acts. This has been brought home to the pharmacists of Massachusetts during the past winter in a very substantial manner. The activity displayed by our efficient drug analyst has struck terror to the soul of the adulterater. It was found that opium and preparations of opium were persistently and systematically adulterated; that is, if the record of their analysis goes for anything. Thus, in the case of laudanum, which should assay at least 1.20 per cent of morphine by the U. S. P. process, one assay showed that the laudanum had been adulterated to the extent of one-third, another, one-half, and still another, very nearly three-quarters—showing that those engaged in this business were quite systematic in their operations. The processes selected as representing standard authorities were those of the U. S. P., German Pharmacopœia, and British Pharmacopœia, my object being to ascertain which process most thoroughly exhausted the drug of morphine, or, in other words, which process produced the most morphine. I had simply to proceed to assay the opium by the three different methods, and compare the results.

* Paper read at the meeting of the Amer. Pharm. Assoc., at Milwaukee, Aug., 1884.

Three samples of powdered opium were taken, and an assay made of each sample by each of the three processes, making nine assays in all. In using the U. S. P. process, I found that certain details which could not be properly put into the Pharmacopœia, were quite useful in carrying out its requirements. Thus, the freshly-slaked lime should be in the powdered form. This can be done by using lime, three parts, and water, one part.

The quantity of slaked lime directed to be used is intended to be in excess, so that if a little more is used there will be no harm done. Hence it can be weighed in a larger balance, if it is more convenient to do so.

Then the ammonium chloride is also in excess, and can also be weighed on a large balance, care being taken, however, to have at least the *full* quantity. The commercial ammonium chloride, in the form of crystal, was carefully powdered in a mortar each time, as the powdered ammonium chloride of the market should not be relied on for purity.

Then the filter should be wet with ether before decanting the ethereal layer upon it, for it is the ether that we wish to pass through first, and thus hasten the process.

A fine glass rod was used to decant upon the filter. In decanting the ethereal layer, there is no absolute necessity for being particular to decant only the ethereal layer, for at least one-half the other liquid will be carried along with it in any event. I found it convenient, in washing the crystals with ether, to do so with a two C.c. pipette.

After the crystals have been washed with ether, they need to be dried in the air only long enough to get rid of the ether, perhaps an hour. This is necessary, in order that the rest of the liquid, when added, will filter readily.

I have spoken of these points rather more in detail than I otherwise should, for the benefit of those who may have met with these difficulties, and have not clearly seen their way out of them.

The results of the three samples assayed by the U. S. P. process are as follows:

No. 1, 12.50 per cent of morphine.
" 2, 12.48 " " " "
" 3, 13.40 " " " "

The crystals were quite well defined, and quite light colored. Samples of opium No. 1 was quite dark colored; samples Nos. 2 and 3 were quite light colored; which shows that the color of the opium is no guide to its morphine strength; and, indeed, I have found that the physical appearances of powdered opium as a rule give no clue to its morphine value.

The result of the same three samples assayed by the process of the German Pharmacopœia are as follows:

No. 1, 8.50 per cent of morphine.
" 2, 10.50 " " " "
" 3, 9.25 " " " "

The crystals were quite light colored and somewhat larger than those produced by the U. S. P. process. This process is somewhat tedious, the liquids all being required to be weighed. The crystals of morphine were dried at between 70° C. and 80° C. till they ceased to lose weight, rather than at 100° C., in order to make sure that none of the morphine be lost. This process claims ten per cent of morphine.

The results of the same three samples assayed by the process of the British Pharmacopœia are as follows:

No. 1, 5.12 per cent of morphine.
" 2, 8.25 " " "
" 3, 3.42 " " "

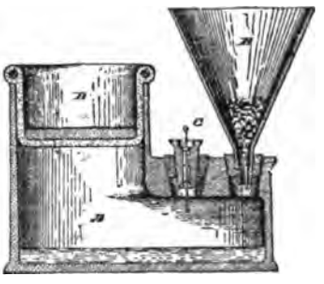
This process seems to be somewhat indefinite. No temperature is mentioned at which the opium shall macerate No temperature is mentioned for the remaining water that is to exhaust the opium. It speaks of concentrating to the bulk of one-half an ounce, but says nothing about the temperature at which this shall be done. It speaks of washing the precipitated morphine on a filter with cold water, but gives no limit. The morphine obtained by this process was quite dark colored, and it was difficult to find any crystals whatever. The morphine in this case was also dried at between 70° and 80° C., and not at 100° C., as directed by the process. Doubtless the new revision of the British Pharmacopœia will supply a much better method of assay. This process claims from 6 per cent to 8 per cent of morphine.

The morphine obtained in each case was shaken with one hundred parts of lime-water, and in no case was it completely dissolved, but in each case very nearly so, and all to the same extent.

The morphine of the U. S. P. and German Pharmacopœia was quite light in color, the U. S. P. being quite as light as the German, and the British was quite dark.

It will be seen that the U. S. P. process calls for at least 12 per cent of morphine, that the German calls for 10 per cent morphine, and that the British calls for at least 6 per cent of morphine, and that by actual experiment the U. S. P. process gave the largest yield, the German a much smaller yield, and the British the least of all.

That the morphine in each case dissolved to the same extent in lime-water, and that the morphine obtained by the U. S. P. process was much lighter colored than the British, and quite as light colored as the German, and gave a far larger yield than either of the other processes. The only inference that can be drawn from these results is that the present U. S. P. process is by far the most definite as to detail, yields by far the most morphine, and hence exhausts the opium more thoroughly than any of the other processes.



VACUUM PRESS PERCOLATOR.

Chas. R. Knapp, of San Francisco, is the patentee* of an apparatus for making use of atmospheric pressure for hastening percolation, a section of which is shown in the adjoining illustration. It consists of a vessel with three openings, in larger of which is an elastic diaphragm, another holds a stopper containing an outlet valve, and the third admits the nozzle of a percolating vessel. The joints being made air-tight, a weight placed upon the diaphragm causes some of the air in the vessel beneath to escape by way of the valve, and on the weight being removed, the recoil of the diaphragm causes a partial vacuum in the receiver so that the pressure of atmosphere on the surface of the liquid in the percolator materially hastens its flow.

"Hamburger Thee" consists of 32 parts of senna leaves, 16 parts of manna, 8 parts of coriander, and 1 part of tartaric acid.

* Patent 293,335.

CORRESPONDENCE.

Ed. American Druggist:

In looking over the April number of the American Druggist, I noticed on page 61 an article headed "names," giving the derivation of a certain class of surnames. The subject is one of considerable interest to me, and I take the liberty of reminding you that another class of names is derived from what is or was called in England the Christian name of the father before surnames were commonly used, thus a man named Henry has a son named Matthew, know as Matthew of Henry's at the time and amongst his neighbors and afterwards all over the world as Matthew Henry. Some forty years ago, I had occasion to call upon a Richard Hodgdon, living in a village about five or six miles from Halifax in England. Supposing him well known, I naturally inquired for Mr. Hodgdon, and was surprised that no one could inform me where he lived, or even knew such a man. At length, after describing him to a persom whom I met, she exclaimed to a neighbor, Oh, he means Dick O'Toms. In the same village I read on the sign board of a stone and marble worker, an announcement commencing thus,

"Will O Mary's does live here,
Who letters grave stones far and near,
Both plain and ornamental."

Evidently a large number of names are derived as indicated above.

W. C.

West Buxton, Me.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,342.—Incompatible Prescription (Subscriber).

This correspondent asks us how the following prescription should be put up:

℞ Tr. Ferri Chlor....	....fl.	ʒ	6
" Nucis Vom.....	fl.	ʒ	3
Quininæ Sulph.....	gr.		20
Potass. Iodidi.....		ʒ	6
Syrupi.....	fl.	℥	2
Tr. Iodi.....	fl.	ʒ	1
Aquæ.....q. s. ad	fl.	℥	8

M. Dessertspoonful in a little water, three times a day.

When the above are mixed, there is produced a brownish precipitate, which remains for some time suspended in the liquid. This precipitate consists of tannate of iron and free iodine. The iodide of potassium partly reacts with the chloride of iron, and forms ferrous iodide and free iodine; another portion reacts with the alkaloids, converting them into hydriodides; if the menstruum were purely aqueous, the additional presence of free iodine would cause the complete precipitation of these alkaloidal salts. But alcohol being present, they remain in solution. The tannin contained in the Nux Vomica reacts with the iron salt and produces some ferrous tannate. These are, in general, the probable changes which take place. Probably their occurrence also depends on the rotation in which the substances are mixed.

The tincture of iodine is evidently the troublesome ingredient; and we

have nothing else to suggest than to consult with the writer of the prescription and to ask him to leave it out.

Further, to produce a clear mixture, we advise to suggest to the prescriber the addition of a little citric acid and afterwards of water of ammonia; or, better still, to use the so-called tasteless tincture of iron. The latter, however, having but little, if any, excess of acid, is not so good a solvent of quinine. Hence we advise the addition of a little citric acid. The following would then be the formula:

℞ Tinct. Nucis Vom.....	fl. ʒ	3
Potass. Iodidi.....	ʒ	6
Syrupi.....	fl. ℥	2
Misce et adde		
Quin. Sulphat.....	gr.	20
Tinct. Ferri Citro-Chlor. ("New York and Brooklyn Form.").....	fl. ʒ	6
Acidi Citrici.....	ʒ	1
Mixturæ adde		
Aquæ.....q. s. ad fl.	℥	8

No. 1,343.—**Veronica serpyllifolia** (H. C. N.).

This is a species of Veronica which has been introduced from Europe, or may have been indigenous, according to some authorities. Gray thus describes it:

"*V. serpyllifolia* L. (Thyme-leaved Speedwell.) Much branched at the creeping base, *nearly smooth;* branches ascending and simple (2'-4' high); leaves *ovate or oblong*, obscure crenate, *the lowest petioled* and rounded, the upper passing into lanceolate bracts; *raceme* loose; pod rounded, broader than long, obtusely notched.—Roadsides and fields; common; introduced and indigenous. May–July.—Corolla whitish, or pale blue, with deeper stripes."

Regarding its medicinal properties we have no reliable information, but we presume that this species shares the common properties of other species of Veronica, which have been regarded as diaphoretic, diuretic, expectorant, and tonic; one of them is also considered as cathartic.

No. 1,344. — **Vinum Digestivum, Long** (A. W.).

Long's Digestive Wine is prepared as follows:

Fresh pancreas (from hog).....	200 parts.
Bicarbonate of Sodium.....	2 "
Pepsin.....	10 "
Glycerin.....	70 "
Sherry Wine.....1,500	"

Grind the pancreas and bicarbonate of sodium together to a thin, smooth pulp and add to this 50 parts of glycerin and 900 parts of sherry wine. Mix thoroughly, set it aside in a cool place for six hours, then express and strain. To the residue add 100 parts of sherry and express again.

Mix the pepsin with the remainder of the glycerin (20 parts) and sherry wine (500 parts), and when dissolved, add the solution to the expressed liquids previously obtained.

Set aside for six days, occasionally agitating; then filter.

Dose: Half a wineglassful to be taken before and after meals.

No. 1,345.—**Coca Bitters** (J. T. D.).

The following recipe has been furnished us by a correspondent:

Fl. Ext. Coca.....	1 fl. oz.
" " Gentian.....120	min.
" " Canella.....	60 "
" " Sweet Orange P..	40 "
" " Ginger.....	15 "
" " Cardamom.....	10 "
Simple Elixir ("N. Y. and Brooklyn Form.").q. s.ad	16 fl. oz.

No. 1,346.—**Hoof-Ointment** (D.).

A very good hoof-ointment, intended to be applied to hoofs of horses and cattle when the superficial layers have become brittle, dry, and fissured, is made thus:

Yellow Wax.....	20 parts.
Pitch.....	20 "
Tar.....	20 "
Lampblack.....	10 "
Suet.....100	"

Melt them together with a gentle heat, and stir until cold.

No. 1,347. — **Hypodermic Solution of Quinine.**

Chas. N. Seltzer, M.D., of Philadelphia, writes us as follows respecting a solution of quinine for hypodermic use, which is free from the irritating properties of most of the solutions commonly used. We shall be greatly obliged if any person who may try it will inform us of the results following its use. Dr. Seltzer writes:

". . . Knowing, from having used it for the past five years, that it is less irritating, has never caused an abscess, and keeps very well; a specimen now before me being perfectly clear, after being prepared eight months. No heat is necessary for solution. Each ♏v. contains gr. i. of sulphate of quinine (gr. xij. to the ʒi.).

Sulphate of Quinine.....	gr. xx.
Lactic acid.....	♏xx.
Distilled water.....	q.s. ad ♏c.

Mix."

BIBLIOGRAPHY.

UNIVERSAL-PHARMAKOPOE. Eine vergleichende Zusammenstellung der zur Zeit in Europa und Nordamerika gültigen Pharmakopoeen. VON DR. BRUNO HIRSCH. Erste Lieferung, 8vo, Leipzig: Ernst Günther's Verlag, 1885.

THE present work, from the pen of the most competent authority on pharmacopœial science on the continent of Europe, will undoubtedly fill a long-felt want in pharmaceutical literature. The recent issue of new editions of several important national pharmacopœias—U. S., German, and French—has made it necessary to refer to these several works when preparations contained therein or based on the same are prescribed or called for. At the same time, however, it will require much time and research to ascertain, from the original works, the relative strength of the preparations in the different pharmacopœias, or to determine, for instance, what part or parts of a plant, and preparations made from it, may be official in one or the other. When reading foreign professional periodicals or books, the reader will often meet recipes or terms based on the pharmacopœia of the writer's country which will frequently remain obscure or unintelligible without reference to the original work. Yet actual reference to the latter is very often out of the power of the reader, since several important pharmacopœias are written in the vernacular (French, Portuguese, Spanish, Russian) or else in Latin, with which languages not every reader is familiar.

Dr. Hirsch's work affords to all who have a command of German, a concise and complete conspectus of the pharmacopœias of all civilized nations. Each title or article is so constructed as to show successively in which points the various Pharmacopœias agree, and in which they differ; critical and explanatory notes are interspersed where necessary, and great care has been taken to ensure completeness and accuracy.

The work will be published in about 12 numbers, to be issued about monthly; price, 2 marks per number.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

Respirator. 301,111.—David Genese, Baltimore, Md., assignor of one-half to Dickey, Tausley & Co., same place.

Bottle Stopper. 301,139.—Morris B. Manwaring, Chicago, Ill. A bottle-stopper consisting of an ordinary bottle-cork, having its bottom and circumference entirely covered with a vulcanized rubber casing, the top of which is provided with an inwardly-projecting flange which laps over the upper edge of the cork, for holding the cork within the casing, and leaves the centre of the cork exposed for the action of the cork-screw, etc.

Bellows attachment for Barrels. 301,146.—Hardy B. Park, Dallas, Texas.

Sulphur Refining Apparatus. 301,222.—Ferdinand Dickert, Salt Lake City, Utah.

Material for Packing Bottles. 301,250.—Oliver Long, Brooklyn; assignor of one-half to Charles Schuter and Charles Forster, both of New York, N. Y.

Hollow Suppository. 301,355.—Edwin H. Gibbs, New York, N. Y.

Apparatus for Combining Anœsthetic Agents. 301,377.—Amos M. Long, Monroe, Mich.

Bitters. 301,385.—George Mitchell, Brooklyn, N. Y. An infusion and solution of Turkey rhubarb, bitter aloes, cream of tartar, pimento, and quinine in Holland gin.

Faucet Cork-Screw. 301,425.—William H. Bayles, Port Jefferson, N. Y.

Medicated Sponge Substitute. 301,443.—Joseph Sampson Gamgee, Birmingham, England, assignor to Silas Maineville Burroughs and Henry Solomon Welcome, both of London, England.

Hydrometers for Light and Heavy Liquids. 301,444.—Henry Gunth, New York, N. Y.

Lactometer. 301,445.—H'y Gunth, New York, N. Y.

Medicated Bath. 301,483.—Oliver E. Davis, Cincinnati, Ohio, assignor to Charles C. Davis, Philadelphia, Pa.

Perfumery Cabinet. 301,497.—Benjamin Franklin Hoard, New York, N. Y., assignor of one-half to Sidney C. Thompson, same place.

Vessel for Liquids. 301,576.—Benjamin J. Downs, West Sommerville, assignor to Timothy D. Baker, Trustee, Boston, Mass.

Portable Distilling Apparatus 301,636.—Lyman Smith, Kansas City, Mo.

Portable Siphon. 301,767.—William F. Stark, New York, N. Y.

Method of Refining and Deodorizing Oils and Fats. Edgar S. Wilson, Camberwell, Eng.

Swinging Demijohn and Label Holder. 301,954.—Lucien Brand, Almeda, Cal.

Bottle Stopper. 301,965.—Jefferson Davis Cotten, Gainesville, Texas. The combination of a tubular body, having its lower end closed by means of a cork, and its upper end formed into a measuring-chamber, which is adapted to be closed by a cork, to exclude dirt and dust.

Medicated Paper for Surgical or Toilet Use. 302,073.—Seth Wheeler, Albany, N. Y.

Medical Compound. 302,174. — Sophia M. Tracy, Deadwood, Dak. A compound of Peruvian bark, wild cherry bark, white oak bark, whortleberry bark, calamus root, white rock-candy, and pure whiskey.

Soda-Water Apparatus. 302,262.—Edward D. Kendall, Brooklyn, N. Y.

Cork-Screw. 302,321.—William R. Clough, Brooklyn, N. Y.

Cork-Screw. 302,331.—Charles S. Griswold, Chester, Conn., assignor of one-half to James B. Clarke and William N. Carke, Jr., of same place.

Box for Holding Dry Powdered Substances. 302,663.—William R. Miller, Baltimore, Md.

Percolator. 302,675.—Wallace Suits, Canastota, N. Y., assignor to Anna M. Suits, same place.

ASSOCIATION AND COLLEGE NOTES.

American Pharmaceutical Association.

OWING to the late day and the necessity of going to press, we cannot give space, in this number, to a full report of the proceedings of the Annual Meeting of the Association which was held at Milwaukee, Wis., Aug. 26th to 29th.

The officers and committees elected or appointed for the ensuing year, so far as the reports have reached us, are the following:

President.—John Ingalls, Georgia.

Vice-Presidents.—John A. Dadd, Wisconsin; Henry Canning, Massachusetts; C. F. Goodman, Nebraska.

Treasurer.—Chas. A. Tufts, New Hampshire.

Permanent Secretary.—John M. Maisch, Pennsylvania.

Local Secretary.—To be filled.

Reporter on Progress of Pharmacy.—C. Lewis Diehl, Kentucky.

STANDING COMMITTEE ELECTED.

Drug Market.—M. N. Kline, Chairman, Pennsylvania; W. A. Gellatly, New York; E. Waldo Cutler, Massachusetts; Daniel Myers, Ohio; William Simpson, North Carolina.

Papers and Queries.—J. U. Lloyd, Chairman, Ohio; G. W. Sloan, Indiana; W. W. Bartlett, Massachusetts.

Prize Essays.—C. Lewis Diehl, Chairman, Kentucky; H. B. Parsons, New York; Emil Scheffer, Kentucky.

Legislation.—J. M. Maisch, Chairman, Pennsylvania; S. A. D. Sheppard, Massachusetts; Edmund Bocking, West Virginia.

Members of Council, to Expire in 1887.—W. J. M. Gordon, Ohio; J. L. Lemberger, Pennsylvania; W. S. Thompson, District of Columbia.

APPOINTED COMMITTEES.

Committee on Unofficial Formulas.—Charles Rice, P. W. Bedford, W. P. DeForrest, A. Tscheppe.

The next annual meeting (1885) will be held at Pittsburg, Pa., on the second Tuesday of September. The Association decided that it was inexpedient to hold the annual meeting of 1886 at San Francisco, as had been proposed.

Several interesting papers read at the Milwaukee Meeting will be found on other pages of this number, as well as a portrait of the President elect.

National Retail Druggist Association.

THE annual meeting of this body was held at Milwaukee, Aug. 25th and 26th. Of the proceedings we can notice, in this number, only the following.

The "Campion plan" was reported to work satisfactorily, on being thoroughly tried at Philadelphia, and it was evident that a majority of the members present regarded it as the only effective measure to abolish the present trade-abuses.

A motion to officially recommend or indorse it was at first referred to the Executive Committee, and at a subsequent session such a motion was adopted.

The following officers were elected for the ensuing year.

President, Henry Canning, Boston.

Vice-Presidents, Lucius Lybrand, Nobleville, Ind.; J. B. Bond, Little Rock, Ark.; Charles A. Heinitsch, Lancaster, Pa.

Secretary, J. W. Colcord, Lynn, Mass.

Treasurer, J. D. Wells, Cincinnati.

Executive Committee, E. A. Sayre, Brooklyn, N. Y.; A. P. Brown, Camden, N. J.; L. E. Sayre, Philadelphia, Pa.; Leo Eliel, South Bend, Ind.; W. W. Bartlett, Boston, Mass.; Chas. Becker, Washington, D.C.; J. F. Moore, Baltimore, Ind.; L. C. Hopp, Cleveland, O.; F. W. Sennewald, St. Louis, Mo.; W. C. Lane, Lincoln, Neb.; John F. Pelton, York, Pa.; F. W. R. Perry, Detroit, Mich.; Gustavus Balser, New York City.

Mr. E. A. Sayre declared that he could not serve as chairman for another year, and the selection of a chairman was left to the Committee.

Michigan.—The annual meeting of the Alumni Association of the University of Michigan was held in the lecture room of the Pharmaceutical Building on June 25th.

President Parker was in the chair. Nineteen members were present, and about thirty members of the Class of '84 joined the Association.

President A. S. Parker, of Detroit, delivered his annual address, after which the principal topics of the address were discussed. The annual dinner was served at the Cook House, and after a few after-dinner speeches had been delivered, the Association again assembled at the University and listened to the annual address by A. B. Stevens, of Detroit. It was voted that a committee of three be appointed by the Chair to represent the views of the Alumni Association upon the provisions of a State pharmacy law, in case such a representation should be called for. The committee was then appointed as follows: A. B. Stevens, '75; Geo. Gundrum, '76; H. W. Calkins, '78. It was then voted, without a dissenting voice, that, in the judgment of this Association, it is not favorable to the interests of pharmacy or of pharmaceutical education to release the holders of diplomas from any examination required of others, under laws to restrict the entrance into the practice of pharmacy to competent persons.

In the evening, the members were present at the Alumni reception of all departments, at University hall.

The annual commencement of the University, embracing that of the department of pharmacy, was held on the following day, the 26th. Bishop Potter, of New York, delivered the address, and in the afternoon six hundred alumni and guests participated in the commencement dinner.

The second annual meeting of the Michigan State Pharmaceutical Association will be held in Merrill Hall, Detroit, Sept. 9th, 10th, and 11th next. Reduced rates have been granted by the railroads, and a large attendance is expected. Members are invited to bring their wives with them. The papers to be read, the commercial exhibits to be made by the leading wholesale druggists and manufacturers of the country, and the consideration of trade interests are expected to make up a very interesting programme.

The exercises will open at 2 o'clock Tuesday afternoon, Sept. 9th. Mayor Grummond will deliver the address of welcome, to which Prof. Prescott, of the University, will reply. The President's address will also be read at this meeting. The evening and Wednesday morning will be devoted to the reading of papers and the consideration of miscellaneous business. Wednesday afternoon visiting members will be given an excursion on the river by Detroit Druggists, and Parke, Davis & Co.'s laboratory will be visited. Wednesday evening trade interests will be considered until 9 o'clock. After that hour a banquet will command the time and attention of the association. Thursday morning officers will be elected, routine business finished, and the association will adjourn.

The details of arrangement are in the hands of the Detroit Pharmaceutical Association.

The committee on reception consists of Fred. Stevens, A. B. Saltzer, and Frederick Rohnert. The present officers of the association are as follows: *President*, Frank Wells, Lansing, *First Vice-President*, Isaac Watts, Grand Rapids; *Second Vice-President*; L. H. Dodd, Buchanan; *Third Vice-President*, Wm. B. Wilson, Muskegon; *Treasurer*, Wm. Dupont, Detroit; *Secretary*, Jacob Jesson, Muskegon; *Local Secretary*, A. B. Allen, Detroit. *Executive Committee*, G. W. Conter, Charlevoix; George McDonald, Kalamazoo; F. M. Alsdorf, Lansing; O. P. Safford, Flint; H. J. Brown, Ann Arbor.

Pennsylvania.—A meeting of the Luzerne County Pharmaceutical Association was held at Wilkes Barre, July 11th. Messrs. Drumm, Price, and Schobert were elected members.

The Committee on Trade Interests reported a general good feeling among the druggists, there being but one *cutter* in the county.

Indiana.—The monthly meeting of the Indianapolis Association of Pharmacists was held Wednesday evening, August 6th.

Upon motion of Geo. W. Sloan, delegates were appointed to the A. P. A. and N. R. D. A., as follows: To A. P. A.—J. N. Hurty, Jas. R. Perry, Emil Martin, and J. K. Lilly. To N. R. D. A.—F. H. Carter, George F. Traub, H. C. Pomeroy, C. H. Schad, Siegmar Muehl.

Rhode Island.—The first of the monthly meetings of the Rhode Island State Pharmaceutical Association was held in the City of Providence on Wednesday, August 6th, President W. H. Cotton occupying the chair.

The Executive Committee was authorized to revise the by-laws with a view to their publication, and report at the next quarterly meeting.

The following resolution, offered by Mr. H. I. Leith, was passed, and a committee, consisting of Messrs. William B. Blanding, A. L. Calder, and Norman M. Mason, was appointed thereon:

Whereas, It is desirable that in the interval between the decennial revisions of the Pharmacopœia a record be kept of all information and knowledge resulting from the practical use of official formulas, together with such additions and omissions as may be deemed useful in the next ensuing revision; therefore,

Resolved, That a permanent committee on the Pharmacopœia, to consist of three members, be appointed, who shall keep a current commentary thereon, and a record of all criticisms and suggestions made upon it while in practical use, with a view to its future revision; and that the chairman of this committee shall, at the Annual meetings of the Association, report in writing. And it is earnestly requested that the members generally communicate to the chairman such information and suggestions as relate to the duties of said committee.

A committee on queries, consisting of Messrs. O'Hare, Gladding, and Leith, was then appointed.

New York.—The semi-annual meeting of the Westchester County Pharmaceutical Association was held at Huguenot Hotel, New Rochelle, Thurs-

day, July 23d. All the officers and fifteen members were present.

Mr. Hart, Chairman of the Executive Committee, reported that the Association numbered thirty-five members, that being more than fifty per cent of the number of druggists in the county. Mr. Charles Henry was elected a member of the Executive Committee, to fill the place made vacant by the resignation of F. W. Henry. The Secretary was instructed to procure enough copies of the N. Y. and Brooklyn Formulary to supply each member of the Association. The meeting then adjourned to meet in Yonkers, in January next.

A company with five members has been organized, to be known as the "Flushing Pharmaceutical Company." John Hepburn was elected President, W. C. Wagner, Vice-President, and J. D. Aug. Hartz, Secretary and Treasurer.

The object of this company is to be the combined buying of staple goods in larger quantities for cash, in order to obtain the lowest prices and best discounts.

The regular semi-annual meeting of the German Apothecaries' Society was held July 10th. The Committee on Publication reported that a third edition of the New York and Brooklyn Formulary had been found necessary, as the second edition had been exhausted. Mr. E. Plath presented his resignation as a member of of the Committee, and Gustavus Ramsperger was appointed in his place.

The annual meeting of the Erie County, N. Y., Pharmaceutical Association was held at the Y. M. C. A. building, Buffalo, on Tuesday, P.M., Aug. 5th, President R. N. Smither in the chair, and twenty-three members present. The minutes of the last monthly meeting were read and approved.

Chairman Thomas, from the Committee on Trade Interests, presented his report.

President Smither read his annual report.

Secretary Hayes read his report, which shows the present membership to be eighty, an increase of seventeen during the past year.

The officers chosen for the coming year were A. C. Anthony, *President;* George Reiemann, W. G. Gregory, M.D., *Vice-President;* Neil McEachren, *Secretary;* Geo. G. Sykes, *Treasurer;* Messrs. A. C. Anthony, Neil McEachren, Geo. E. Sykes, T. M. Johnson, M.D., and J. Rieffenstahl, *Board of Trustees;* J. M. Thomas, Thomas Stoddard, and H. J. Dimond, *Board of Examiners.*

At the annual meeting of the Erie County Pharmaceutical Association, held August 5th, were elected the following: *President*, A. C. Anthony; *Vice-Presidents*, Geo. A. Reiman, W. G. Gregory, M.D.; *Secretary*, Neil McEachren; *Treasurer*, Geo. E. Sykes; *Board of Trustees*, A. C. Anthony, N. McEchran, Geo. E. Sykes, Thos. M. Johnson, M.D., J. Rieffenstahl; *Board of Examiners*, John Thomas, Thos. Stoddart, H. J. Dimond.

Wisconsin.—The fifth annual meeting of the Wisconsin State Pharmaceutical Association was held in Madison, August 5th, 6th, and 7th.

President Sumner was in the chair, and called the meeting to order at 10.30 A.M.

The Secretary reported a membership of 309 active, and 200 honorary members. On Wednesday, August 6th, Vice-President Heuber opened the session, and fourteen members were elected.

At the afternoon session, the State Board of Pharmacy made its third annual report to the Association, which showed that during the past year meetings have been held at Milwaukee, Eau Claire, Madison, and Fond du Lac, besides a special meeting at Madison to visit the school of Pharmacy at the State University. During the past year 88 candidates were examined, of whom 50 took certificates as licentiates, 14 were granted minor certificates; 24 were rejected. During the year 4 certificates as registered pharmacists were granted, and 7 minors; 14 certificates were also granted to graduates. 39 pharmacists have discontinued business, 28 have left the State, and 8 have died since the last report. At the annual meeting in Madison, April 22d last, the board elected A. H. Hollister, of Madison, president, and E. B. Heimstreet, of Janesville, secretary, for the ensuing year. The salary of the secretary was fixed at $300 per year. The few complaints during the past year have been settled without recourse to the law. The fee for the renewal of certificates was left at $1 for registered pharmacists and 50 cents for assistants. The secretary has kept a record of clerks desiring situations and proprietors desiring clerks. The board recommend some provision for a second grade or assistants' certificate. The receipts of the past year were $2,048.67, and the expenses $1,220.68, leaving a cash balance of $827.99. The number of registered pharmacists in the State is about 1,300.

Thursday morning the pharmacists again assembled, and President Sumner announced the following standing committees for the ensuing year:

Executive.—Geo. Howard, La Crosse; O. N. Falk, Stoughton; E. Saunerhering, Marquette; E. E. Hinkson, Poynette; W. G. Palmer, Janesville.

Drug Market.—Prof. F. B. Power, Madison; J. C. Huber, Fond du Lac; C. A. Avery, Madison; Otto Theile, Milwaukee; E. B. Patten, Waupun.

Queries and Papers.—F. S. Fenton, Beloit; H. C. Stearns, Janesville; H. B. Allen, Richland Centre.

Legislation.—A. H. Hollister, Madison; A. A. Pardee, Madison; Fred. Robinson, Kenosha.

Mr. F. Robinson, chairman of the Committee on Taxes, reported in favor of petitioning Congress for the abolition of the internal revenue tax on alcohol. The delegates to the A. P. A. and N. R. D. A. were named as the committee on taxes for the ensuing year, with Mr. Robinson as chairman. They are as follows: J. A. Dadd, Milwaukee; Fred. Robinson, Kenosha; F. Prentice, Janesville; George Howard, La Crosse, and E. B. Patten, Waupun.

OFFICERS ELECTED.

The following officers were chosen for the ensuing year:

President, George Howard, La Crosse; *First Vice-President*, H. J. Goddard, Chippewa Falls; *Second Vice-President*, James Morrison, New Lisbon; *Permanent Secretary*, E. B. Heimstreet, Janesville; *Local Secretary*, F. F. Prentice, Janesville; *Treasurer*, Wm. P. Clark, Milton.

The following gentlemen were named to the Governor, from whom the latter is to choose a member of the State Board of Pharmacy: John A. Dadd, Milwaukee; F. Robinson, Kenosha, and J. C. Huber, Fond du Lac.

NEW MEMBERS.

The following 32 gentlemen were admitted to membership at the several sessions.

Daniel Lynk, Cumberland; Will. A. Grimmer, Mausten; Herman A. Fisher, Baraboo; Aug. F. Fisher, Baraboo; William E. Williams, Cambria; Peter Benle, Beaver Dam; Albert G. Ellis, Brooklyn; Esau C. Ryall, Augusta; L. V. Lewis, Sun Prairie; Edwin W. Beebe, Tomah; H. J. Goddard, Chippewa Falls; K. T. Roslad, Blanchardville; A. F. Menges, Madison; O. T. Wolhiser, Collins; H. B. Newcomb, Baraboo; F. W. Bryan, Lancaster; W. B. Baxter, Lancaster; Judson Kelly, Waupun; J. A. Kaerwer, Oshkosh; C. P. Forster, Reedsburg; James R. Fitzgerald, Ironton; J. G. M. Rymning, La Crosse; W. H. Sigler, River Falls; O. A. Kropf, Madison; W. A. Axtel, Evansville; J. A. Edmand, Kendall; P. P. Cross, Sun Prairie; C. J. Linquest, Rio; A. J. Humphrey, Waterloo; S. J. Andrews, Mazomanie; F. N. Swain, Madison; C. F. Brooks, Chicago.

The annual revenue of the British Medical Association exceeds $100,000; one-half is derived from annual subscriptions of members, and nearly as much is obtained from advertisements and sales of the journal, the remainder being from interest on investments. The excess of income over expenditures in 1883 was $12,020. The Association now has over $85,000 invested in Government and railway securities.

PHARMACEUTICAL CALENDAR.—SEPTEMBER.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Tues. 2d.	Erie Co. (N. Y.) Pharm. Assoc. M.—Buffalo.	Thurs. 11th.	New York Germ. Apoth. Soc.
	Maryland Col. Pharm.		Lancaster Co. (Pa.) Pharm. Assoc.
	St. Joseph (Mo.) Pharm. Assoc.	Tues. 16th.	St. Joseph (Mo.) Pharm. Assoc.
	Rhode Island Chem. and Drug Clerks' Assoc.—Providence.	Thurs. 18th.	New York Col. Pharm. Supplementary Examination of Juniors.
Thurs. 4th.	Louisville (Ky.) Col. of Pharm.—Pharm. M.	Friday 19th.	Rhode Island Chem. and Drug Clerks' Assoc.—Providence.
Friday 5th.	Cleveland Pharm. Assoc.—Bimonth. M.		
	American Chem. Soc.—New York.	Mon. 22d.	New York Col. Pharm. Opening Lecture of 55th Annual Session.
Mon. 8th.	New York City Board of Pharm., 209 E. 23d street, at 3 P.M.—Examination.	Tues. 23d.	Boston (Mass.) Druggists' Assoc.
Tues. 9th.	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.	Thurs. 25th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.
	Michigan State Pharm. Assoc. An. Meet.—Detroit. A. W. Allen, Local Secretary, 410 Grand River Ave.	Mon. 29th.	Philadelphia Col. Pharm.—Semi-A. Meet.
			New York Col. Pharm. Preliminary Exam.
	Albany Co. (N. Y.) Pharm Assoc.	Tues. 30th.	Illinois Pharm. Assoc. An. Meet. at Bloomington.
Thurs. 11th.	Newark (N. J.) Pharm. Assoc.		

American Druggist

Vol. XIII. No. 10. NEW YORK, OCTOBER, 1884. Whole No. 124.

[ORIGINAL COMMUNICATION.]

SPIRITUS ODORATUS AND OTHER PERFUMES.

BY R. ROTHER, OF DETROIT.

As an agreeable perfume, the official Spiritus Odoratus is not a phenomenal success, but the formula is phenomenal in so far that it is the first attempt on record to produce a fragrant essence with an overwhelming proportion of oil of rosemary. An essence of rosemary was surely not contemplated, but the result is certainly nothing else, nor ought anything else to be expected under the circumstances. It is furthermore to be regretted that the unprecedentedly large proportion of precious neroli is wholly wasted in such a connection. Had the amount of oil of rosemary flowers been one part, at most, instead of eight parts, something like a good cologne water would have resulted from the official formula. Acetic ether is a perfectly gratuitous adjunct which is not known to perform any useful function in such a mixture. There is probably no well established precedent extant that could warrant its addition. The volatility of acetic ether contrasts extremely with that of the other ingredients excepting the alcohol and water. The action of the alcohol and water is merely that of a solvent and diluent. In use the permanent presence of the alcohol would be decidedly undesirable, and hence it cannot evaporate too soon. The spirituous effusion may be momentarily agreeable and refreshing, but it is not a distinctly essential office of the perfume. If the acetic ether was incorporated with this purpose in view, its action would differ in no wise from that of the alcohol and hence it is most superfluous. Had the intention been to supplement the stimulating effect of the alcohol by means of the ether, the presence of water should primarily have been avoided and perhaps, then, the device would not have suggested itself.

In perfumes generally, the absence of water is highly beneficial for other reasons, and the pharmacopœia could not have done better than to reduce or altogether abandon the unusually large proportion of water in its Spiritus Odoratus.

Considering the fact that most essential oils are very odorous, it is somewhat remarkable that their boiling points are so high. Of course, bodies generally are slowly dissipated at the lowest temperatures, and therefore independent of boiling points, but complete and rapid volatilization can generally be effected only at the temperature of ebullition. Nevertheless the distillation of volatile oils is affected in conjunction with water. The explanation that is generally given of this peculiar effect is that the oil is not transformed into vapor, but that it is carried over mechanically with the steam. At the boiling heat of water, some of the oil would certainly become vaporized, but by no means in sufficient quantity to account for the rather large transmission. The writer believes that a plausible explanation is afforded in the assumption that vapors dissolve one another at temperatures independent of their respective boiling points, forming mixtures or rather solutions having characteristic features of stability at certain specific temperatures similarly to solutions in general. In an analogous manner solids absorb liquids and gases. This action becomes again very valuable in the use of perfumes.

It has long been empirically known that the presence even in small proportion, of certain solids imparts greater lasting qualities to perfumes undergoing consumption. For this purpose ambergris and musk stand pre-eminent, then follow orris, tonka, benzoin, etc. There is scarcely a compound odor of any note that does not contain one or more of these substances. The most excellent perfumes are not without ambergris and musk. Most of these bodies, are exceedingly agreeable odors in themselves when properly diffused, and although they do not make up the mass of the compound containing them, they are nevertheless its most important and enduring components.

Musk was officially recognized in the older Pharmacopœia, but the new one gives a formula for a tincture of musk. This preparation is officially sanctioned only as a medicine, being compounded in the remarkable proportion of one part in ten parts of diluted alcohol and is five times as strong as that of the German pharmacopœia made with the same menstruum. Musk must certainly be an important and reliable therapeutical agent, when compared with others of similar effect, in the light of its fabulous cost. It is, moreover, strange that so little of the most ordinary physical and chemical properties of such a presumably valuable substance should be known. No modern analysis of musk appears to exist. The Pharmacopœia, in speaking of its solubility, says that one-tenth of it is soluble in alcohol and one-half of it in water. This leaves everything in doubt as to the relative efficiency of these solvents upon the activity and wherein this really resides. The writer, in operating upon the best obtainable "grain" musk, found that strong alcohol readily and completely abstracts the odor and bitter flavor in the formation of a light brown-yellow solution. The residue, when treated with water, yields an insoluble residue and a clear and deep brown-red solution having neither taste nor smell. The addition of potash to this solution deepens the color, and aside from evolving a little ammonia and imparting a slight soapy odor, like that produced by alkalies with animal tissues in general, no other change was noticed. Therapeutically it would now be important to know whether the alcoholic solution or the aqueous extraction of the residue contains the medicinal activity. As far as the sphere of perfumery is concerned, this result shows that strong alcohol, pure and simple, is the proper menstruum for extracting musk.

The action of water on musk gives a brown-red, opalescent, moderately bitter and odorous solution, together with a residue. Treatment of the solution with potash evolves a profusion of ammonia and modifies the odor, however, to no advantage. The residue, when acted upon by strong alcohol, leaves a further residue and produces a light brown-red solution which on evaporation yields a considerable odorous and bitter residuum. From these results it appears that water extracts the odor and taste only partially, and that the remnant probably retains the bitter part. The presence of water doubtless exerts a prejudicial influence on musk. This effect is, however, not observable with the alcoholic solution. It appears, therefore, that some of the constituents of musk, naturally co-existing, when caused to react by the intermediation of water, mutually destroy each other. The writer some years since found that an apparently good sample of musk on treatment with alkaline water became totally inert as a perfume.

It is a great fallacy to believe that alkalies develop the odor of musk. They strengthen the odor in so far as an abundant effusion of ammonia is concerned, and modify it to the extent of supplanting it with a soapy effluvium. If it is desirable to incorporate an alkali, borax is preferable, as it produces little or no change. In this connection it may not be inopportune to state that borax, in some instances, acts beneficially in regenerating odors that have "turned" or "soured." Some time since, the writer had a large bottle of imported bouquet jockey club which shortly after opening acquired a sickening odor. It was mixed with some cheap cologne made of bergamot, lemon, lavender, and tolu, and it tainted the whole. After treating small portions of this mixture with various agents, borax was applied to some of it and appeared to improve it. All the mixture was then treated in a similar manner and filtered after macerating about a week. The product was quite good and readily salable.

Ether acts on musk by leaving a residue and forming a faintly yellow solution. The residue is free from bitterness and the odor and flavor of musk, but it has a strong, purely saline taste. It imparts to alcohol a deeper tint than that of the ethereal solution, but no bitterness and smell. The ethereal extraction yields on evaporation an outer margin of transparent, light-brown, unctuous matter, having a bitter taste and the odor of musk, and an inner circle of colorless, tasteless, and odorless fatty substance. The weight of the total extract is about 25 per cent of the musk.

Chloroform acting on musk gives a residue and a faintly brown-yellow solution. The residue has a strong, salty taste, but no bitterness and odor. The solution leaves, on evaporation, a transparent, light-brown, fatty mass of bitter taste and the odor of musk. The amount of extract is somewhat less than that given by ether.

It appears from these results that the odor and bitterness go together, and are in all probability the characteristics of a single definite substance representing the fundamental features of musk. It is also evident that chloroform yields a product approximating the pure principle closer than the results given by the other solvents. Alcohol does not wholly dissolve the ethereal and chloroformic products. It dissolves the ether extract, excepting an inert white portion, and from the chloroform residue it takes up all but a few brown, oily globules. These various residues are scarcely affected by dilute alkalies and acids during a moderate period of reaction, but such effect as does result is in nowise beneficial.

Next to the more important solids used in perfumery, stands oil of rose, among the liquids. Nearly all bouquets of the first order contain this delicious scent. Neroli, or the oil of orange flowers, is also highly important, and finally, aside from innumerable other essences occasionally incorporated, the oils of bergamot and lemon, and frequently lavender, constitute the bulk of most compound perfumes.

Many of the fine bouquets are produced by copious additions of the tinc-

tures prepared from various flower pomades. Although these valuable adjuncts lend the superficial freshness so much admired, they are by no means important, as a great number of most excellent odors are generated without their aid. In fact, the jasmine tincture is fairly competent to replace all others.

A false impression largely prevails that an increased number of ingredients augments the excellence of odors. Owing to this belief and the formidable combinations resulting from its practice, comparatively very few perfumes are compounded in a small way. Most of the best odors are, however, very simple in structure. The art of perfumery consists in skilfully combining a relatively few fundamental odors so that, whilst effecting their perfect blending, a new aroma results, superior to each component separately. To illustrate this, the following formula is given as an example of a remarkably sweet and lasting perfume produced in this manner:

Oil Lemon.....	½ fl. drachm.
" Rose.....40	drops.
" Orange Flowers...15	"
Orris root in coarse powder.....	1½ drachms.
Tonka bean in coarse powder.....	1 drachm.
Musk in grain.....	7 grains.
Alcohol, 80%.....24	fl. ounces.

Mix and macerate for seven days, and then filter.

The improvement the writer would suggest in this formula is to employ a full strength, highly rectified or deodorized alcohol, commercially termed "cologne-spirit," and first prepare with this a tincture of the orris and tonka, to which the other ingredients be then added, and the mixture again filtered after due maceration.

In conclusion, the writer will append a formula for a very rich and lasting cologne water, infinitely superior to the official article and less costly. It is a modification or rather simplification of formula which the writer published in the *Tennessee Pharmacal Gazette* for January 27th, 1875, p. 28.

Oil Bergamot.....12	fl. drachms.
" Lemon..... 6	" "
" Lavender flowers 2	" "
" Orange " 2	" "
" Rose 2	" "
" Musk, grain, genuine.....	4 grains.
(Or good commercial extract musk.....16	fl. drachms.)
Cologne Spirit.....	7½ pints.
Water, sufficient to make	8 pints.

Mix the cologne-spirit with 5 fluid ounces of water and add the remaining members of the formula; macerate the mixture for five days and filter.

Even if desirable, it would be impossible to clarify by simple filtration a cologne immediately after mixture, or any similar compound rendered milky by the addition of water. Such turbid solutions in many instances clarify themselves spontaneously in time, and thereupon filter clear and readily. When, however, as is often done, it is attempted to force a clarification by passing the liquid through magnesium carbonate or similar absorbing agent, the operation is tedious and imperfect. As a rule, readily filterable mixtures result when the dilution of the menstruum is first performed before adding the oils. This rule also applies with great success in the preparation of elixirs and aromatic waters in conjunction with the essential clarifying medium. In these cases the oils are first triturated with the absorbent powder and then incorporated with the completed menstruum by gradual addition and constant stirring. This procedure insures a saturated solution which at once filters perfectly clear and rapidly. Precipitated calcium phosphate has repeatedly been suggested for this purpose, for which it is unquestionably superior to all others. In general it is not advisable to filter colognes through absorbent powders, but least of all through magnesium carbonate or charcoal The calcium phosphate appears to be unobjectionable here, and the writer believes that filtration through it even secures immediately the desirable blending of the ingredients ordinarily termed "aging."

DETROIT, MICH.

A New Poison Case.*

BY HENRY BIROTH, OF CHICAGO.

SCARCELY a year passes without some serious accident by poisoning in drug stores of our country, and a large proportion of these sad cases arise from want of systematic precautions, or from absent-mindedness, or haste. Often, indeed, we are unable to account for the occurrence of the mistake, and obliged to exclaim with due humility: "It is human to err;" but while it is impossible to wholly prevent mistakes in dispensing, such cases should surely be reduced to their minimum by every means possible. Not only do these fatal errors carry bereavement to the family of the victim, but the reputation and business of the druggist in whose store the error was made, are at the same time seriously damaged, if not ruined, and the whole profession of pharmacy suffers from the shock to the public confidence.

Every effort made in this direction to prevent these accidents should be considered as an act of humanity and welcomed with gratification, as it relieves the druggist, as well as the public, of a burden of anxiety, fear, and mistrust.

The well-known fact that a poison-safe is a rare thing to be found in most of our drugstores—and where it is found, the least organized—this fact and a recent case of poisoning occurring in my own city from dispensing morphine, in place of quinine, so impressed me that I took up my former studies over the problem of prevention, determined to find, if possible, some practical means of guarding against the recurrence of such fatal mistakes.

I believe that the poison case which I have designed, and to which I now beg leave to invite your attention, will fulfil the end in view more perfectly than any other which has come to my notice.

This poison case is not intended to hold all remedies potent enough to cause alarming results when given in overdoses, for it would clearly defeat the practical value of this safeguard to make it too general. In other words, we could not gain much by moving the greater part of our stock into a separate room or case to be called a poison closet. My poison case is intended to contain only the most potent narcotics and, more especially, those that are frequently used. My aim is to isolate those dangerous substances from all others, and from each other, in such manner that no one who is at all fit to be a pharmacist can possibly commit any mistake between them.

To further increase the efficiency of this safeguard, I recommend that, whenever practicable, dilutions be made of such substances as, for instance, morphine, strychnine, corrosive sublimate, and arsenious acid. The dry triturations or dilutions which I employ in my own store, and which I have found to be exceedingly convenient, are uniformly prepared so that eight grains represent one grain of the active ingredient. The liquid dilutions are solutions of which one fluidrachm represents one grain of the active ingredient. Of course, these proportions can be changed, according to individual preference, making them decimal, if desired, or otherwise; but I regard it as essential that the strength of each dilution should be the same as that of any other of the same class, in order that there may be no error resulting from defective memory.

The doses of the powerful agents of which dilutions should be made are so small that the corresponding doses of their respective dilutions will be found none too large, and the diluents wholly unobjectionable. It is obvious that, if, at any time, one bottle *should* be mistaken for another and one of these poisons thus dispensed, the dose given would be greatly reduced and the danger correspondingly diminished. At the same time, the dilution insures greater precision in weighing, reducing possible deviation from exactness to a minimum.

This poison case is quite compact. In fact, I was surprised to find that a case twenty-four inches broad, twenty-seven inches high, and five inches deep, is amply sufficient. It thus occupies so little space that it becomes easy to find an appropriate place for it in the neighborhood of the prescription counter.

It contains ten compartments, as follows:

No. 1. Labelled "Morphine." This contains an original bottle of morphine (one ounce), with the manufacturer's label undisturbed, and behind it may be placed several drachm-vials of morphine. These bottles are intended for use only when large quantities are called for.

No. 2. Also labelled "Morphine." This is to contain the dilutions of morphine, viz.: in front, a six-ounce bottle of solution prepared as above mentioned, each fluidrachm to contain one grain of morphine sulphate, the diluent to consist of alcohol and water, in the proportion of 1 to 7. The addition of alcohol preserves the solution perfectly. Next to it stands a four-ounce bottle of trituration prepared from one drachm morphine sulphate and seven drachms sugar. Behind these bottles are three shelves. One of them may be used for acetate, valerianate, hydrochlorate, and other salts of morphine; another for pills of morphine; and the third for any other or similar preparations.

No. 3. Labelled "Opium." To contain a four-ounce bottle of powdered opium, and a six-ounce bottle of tincture of opium. Behind these are again three spaces, of which one may be used for denarcotized opium, etc., another for pills, and the third for whatever other opium preparations may be required.

No. 4. Labelled "Cyanides." In this compartment is to be kept an original bottle of cyanide of potassium, behind, and in front, two original

* Read at the meeting of the Am. Pharm. Assoc.

one-ounce vials of hydrocyanic acid, one opened and the other in stock.

No. 5. Labelled "Corrosive Sublimate."—Intended to contain an eight-ounce bottle of corrosive sublimate, and an eight-ounce bottle of solution, prepared of the same strength and in the same manner as the morphine solution; each drachm containing one grain of bichloride of mercury. Behind these are spaces for proto- and biniodide of mercury, yellow sulphate, etc., and also for pills containing corrosive sublimate, the iodides, or other powerful mercury preparations.

No. 6. Labelled "Arsenic." This compartment has two doors. It is to contain a two-ounce bottle of trituration prepared of one drachm arsenious acid and seven drachms sugar; and also an eight-ounce bottle of arsenic kept in a paste-board box in order to distinguish it from the bottle of trituration, since the contents of both bottles are white powder. This additional precaution is deemed highly desirable, although the sizes of the bottles are very different and the labels conspicuous and distinctive.

There is also in this compartment a round eight-ounce bottle of Fowler's solution, and an oval eight-ounce bottle of Donovan's solution; also a four-ounce bottle of solution of chloride of arsenic, and another four-ounce bottle of solution of arseniate of sodium; these two four-ounce vials are of different shape. Behind are spaces for a number of small arsenical preparations, such as arseniate of quinine, arseniate of sodium, red and yellow arsenic, etc., and for pills of arsenious acid.

No. 7. Labelled "Strychnine." This will hold a two-ounce bottle of trituration prepared from one part strychnine sulphate and seven parts sugar; and also a four-ounce bottle containing a solution of the same strength as the morphine solution; the diluent in this case to be of one part alcohol and three parts water. Behind may be placed the small bottles containing the pure alkaloid and its acetate and sulphate, etc., and also granules containing strychnine.

Compartments 8, 9 and 10 are not labelled. They are intended for miscellaneous poisons as described below.

No. 8 is to contain a two-ounce bottle of each of the tinctures of aconite, belladonna, and gelsemium; and behind these may be placed small vials of atropine, atropine sulphate, aconitine, apomorphine, etc.; also pills of these.

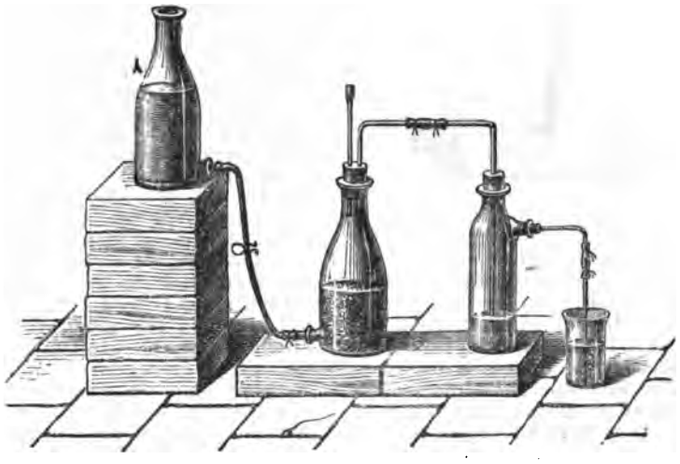
No. 9 contains two-ounce bottles of the stronger acids, as muriatic, nitric, nitro-muriatic, and sulphuric acid, and also of pure carbolic acid for internal use. Behind may be kept small bottles of triturations of calomel and of tartar emetic, one in a dark bottle and the other in a white one; both prepared from one drachm of the chemical to seven drachms of milk-sugar. If considered to be more practicable, these two mixtures may deviate from the rule and be composed in the proportion of one to three. Milk-sugar is to be preferred in these preparations. There may also be kept in this compartment, behind the acids, small bottles containing twenty-five per cent solutions of the extracts of belladonna, hyoscyamus, and opium, prepared from one-ounce extract, to one ounce each of water, alcohol, and glycerin; these solutions keep perfectly and are often very convenient.

No. 10 may contain two-ounce bottles of the tincture of veratrum viride, wine of opium, and deodorized tincture of opium. Behind these may be placed such articles as digitalin, codeine, hyoscyamine, veratrine, and other alkaloids.

The top of the whole case may be utilized for narcotic solid extracts, or for larger stock bottles of tinctures of aconite, opium, etc., or fluid extracts.

It will be seen that, as far as practicable, I have varied the sizes and styles of the bottles themselves to increase the chances of protection. The labels are all conspicuous and very full, giving in each case the exact strength of the several dilutions, etc. The fact that the smaller vials of poisons are placed on the little shelves behind the larger bottles, although seemingly inconvenient, is in itself a very effective safeguard by reason of the necessity of removing the bottle standing in front, before the other can be reached. There are no locks and keys to this case, because I believe these to be wholly unnecessary; it is enough to know that there is nothing in the case but poisons. Moreover, I believe that where locks and keys are placed on the doors of poison cases, the doors are generally unlocked, or great inconvenience arises when the key is mislaid. The doors in this case are readily opened and closed and fit snugly so as to remain closed when pushed to. The only compartment which may require lock and key is case No. 1, containing the original bottle of morphine.

In this little case are thus contained all that is of especially dangerous nature in the drug store, and, as arranged, it will unquestionably prove the most effective means yet devised to guard against fatal mistakes in dispensing, giving protection to the public and to the dispensers alike.



Improved sulphuretted hydrogen apparatus.

IMPROVED SULPHURETTED HYDROGEN APPARATUS.

Dr. Kubel, of Holzminden, has found that ferrous sulphide which has been used for generating hydro-sulphuric acid may be permanently preserved, and available for immediate use, by washing it with water and keeping it under glycerin.

He suggests the form of apparatus shown in the illustration.

Two Florence flasks of about 1 pint capacity are connected together by a piece of tubing slipped over short glass-tubes, passing through rubber-corks in the bottom tubulure of each flask. One of the flasks is closed with a rubber cork through which passes a funnel-tube and a bent piece of glass-tube which is connected by tubing with a similar piece passing through a rubber-tube to near the bottom of another flask (wash bottle) which latter is again connected, by a lateral neck [or more simply, by a second tube passing through the stopper, Ed. Am. Dr.], within the delivery-tube of the gas. The rubber-tube connecting the Florence flasks is provided with a pinch-cock.

The generator is charged first with pieces of quartz, about the size of beans, and upon these the sulphide of iron is placed, in pieces of about the same size as the quartz, until it is about half full. The wash-bottle is partly filled with water, and the stopper of the generator having been inserted, a sufficient quantity of hydrochloric acid, diluted with 2 parts of water, is poured into the Florence flask (*A*) connected with it, which is placed upon blocks of wood. The flow of the acid upon ferrous sulphide is regulated by the pinch-cock.

When the acid is exhausted, the liquid in the generator is made to run back into *A*, the latter emptied and refilled. If the flow of gas is to be stopped before the acid is exhausted, the liquid is made to flow back as before, but the flask *A* is then disconnected and both orifices stoppered with rubber corks. Upon the ferrous sulphide in the generator enough glycerin is poured to cover it, and this is simply drained off when the apparatus is to be used again.

When it is desired to generate hydrosulphuric acid free from arsenic, sulphide of calcium or barium is used instead of ferrous sulphide. In this case no quartz need be put in the generator.

For generating small quantities of the gas, the simple apparatus of Otto (consisting of a small flask, or a simple test-tube with delivery tube) may be used. As soon as the gas is no longer wanted, the liquid is poured off, and a little glycerin poured in until the apparatus is to be used again.—*Arch. d. Pharm.*, 222, 374.

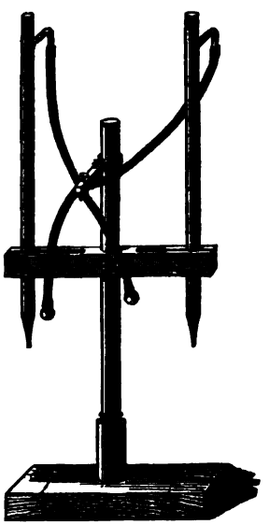
Existence of Manganese in Plants and Animals.

Wheat contains from $\frac{1}{15000}$th to $\frac{1}{5000}$th of its weight of metallic manganese. The bulk of the metal exists as the salt of an organic acid. The bran and the starch do not contain any. Rye, rice, and barley contain much manganese. It is also found in potatoes, beets, carrots, lentils, peas, lettuce, parsley, and in infinitely small traces in apples and grapes, though the leaves of the vine are tolerably rich in manganese. It is found in a larger proportion in cocoa, in a still larger in coffee, and most of all in tea. In the 50 to 60 grammes of ash obtained from one kilo of tea are found 5 grammes of metallic manganese. On the other hand, manganese is not found in oranges, lemons, garlic, onions, etc. Human blood does not always contain it. Very small traces are found in the milk, the urine, the bones, and the hair. It is almost entirely eliminated in the solid excrements, whence it must be regarded as a mere accidental constituent of the animal system, not essential to life.

Medical science must renounce the use of manganese as a substitute for iron. Tea, coffee, and tobacco require an abundance of manganese in the soil.—E. Maumené in *Comptes Rendus.*

Incompatibility of Iodide of Potassium and Sulphate of Quinine.

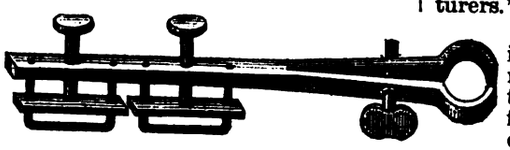
AT a recent meeting of the Société de Biologie, Mr. Rabuteau drew attention to the fact that iodide of potassium and sulphate of quinine, when administered at one and the same time, produce symptoms of anxiety, anorexia, nervousness, and general *malaise*. The effect resembles that produced by an impure iodide containing iodate. A salt of this nature is well known to develop free iodine when coming in contact with the acids of the stomach. According to Rabuteau, the same thing happens when iodide of potassium and sulphate of quinine come together in the stomach; free iodine is separated.—*Gaz. des Hôp.*



THE PIPETTE BURETTE.

THE "pipette burette," patented by Dr. Hübner, of Jena, combines the advantages of both instruments, but is amenable to the objection that when it is allowed to stand for some time after being filled, some fluid is liable to escape. The inventor recommends the employment of Hoffman's pinch-cock in connection with the apparatus, in preference to Mohr's, as better calculated to regulate the flow of liquid, and in the *Archiv der Pharmacie* for July he presents an arrangement of the apparatus and of the pinch-cock, as shown in the adjoining figures.

The burette has its upper end closed by an India-rubber cork, and is filled by suction, applied by means of the rubber tube connected with the side-branch at the upper end. The tubes being grasped by the pinch-cock prevent the admission of air when the burette is not in operation, and the attachment of the pinch-cock to the upright of the stand, as shown in the illustration, enables either burette to be operated with one hand.



Canquoin's Paste.

Fused Chloride of Zinc	10 parts.
Alcohol	2 "
Wheat Flour	15 "

Rub the chloride of zinc to a fine powder and make a paste with the alcohol, then add the wheat flour, using strong pressure with the pestle. When the paste is homogeneous, spread with a roller into sheets about one-eighth of an inch thick, and after a few hours' exposure, preserve in a well-corked bottle.—*St. Louis Druggist.*

The Prescription of Specialties.*

BY PROFESSOR O. A. WALL, M.D., PH.G., OF ST. LOUIS.

THE question, to what extent a physician is justified in specifying certain preparations in his prescriptions, is one to which widely different answers are apt to be given, according to the pecuniary and business interests involved. Many pharmacists take the ground that it is unprofessional for the physician even to specify a certain manufacturer's pills, fluid extracts, elixirs, etc., while others freely acknowledge his right to do so.

This question is one which can best be answered by looking at it from the physician's standpoint, for if it is to his own and his patient's interest that he should specify, then it is proper for him to do so. The physician's duty to his patient is not comprised merely in the visit, the diagnosis, and the written prescription, but it includes also the responsibility for the proper execution of his orders. The physician owes it to his patient to see that he is placed under the best possible conditions for an early restoration to health; to provide proper hygienic surroundings; to regulate his baths, his diet, and nursing; and last, not least, to see that the proper medicines are administered at the necessary time.

In other words, the physician must regulate and control every influence that may restore his patient to health, and the neglecting or slighting of any of these things is a sin of omission towards his patient, who looks to him for his chance of recovery. Not only is it necessary to do all this for the patient's sake, but it is for the physician's own good that he should attend to all these matters. Success in any pursuit in life depends upon an attention to details; and the physician who pays attention to all the details that may or may not assist in rescuing his patient from threatened death, is more successful than he who contents himself with merely writing a prescription and giving a few general directions, which, from the careless manner in which they are given, do not impress themselves upon the attendant's mind as important, and are neglected to the imminent peril of the patient.

One of the details often overlooked by physicians, to their own and their patient's lasting injury, is the looking after the character of the medicines dispensed on their prescriptions.

We have often heard pharmacists say that it is wrong for a physician to direct a patient to go to a certain drug store or to prescribe a certain preparation "thus compelling pharmacists to load their shelves with the same preparations made by different manufacturers."

Let us consider whether this is so very wrong. Many pharmacists speak and write as if they think that it must be taken for granted that every pharmacist is honest and in all regards, ability, education, and business tact, equal to every other pharmacist. But is there anything in the profession of pharmacy that compels us to believe this? Do the gentlemen claiming this, believe it themselves?

Can they not always point out to the physician reasons why he should use their own prescription blanks and send his patients to them for their medicines? The fact is, the business of pharmacy is like any other business or calling in life. When we find that even in that presumably noblest of callings, the ministry, there are scoundrels and dishonest, corrupt men, can we expect better in any other calling?

Pharmacy is followed by able, mediocre, and incompetent men; by honest, indifferent, and dishonest men. Nor must it be taken for granted, as seems to be so often implied in articles written for pharmaceutical journals, that all retail pharmacists are honest, and all manufacturing pharmacists are dishonest, or that the preparations of the former are invariably better than the latter. Nor is the reverse true.

Mankind is the same all the world over, and when there are retail pharmacists who are indifferent to the quality of the goods they dispense, and consider only the price of the goods in determining which they will buy, there will also be manufacturers who will make cheap preparations, and wholesalers who will supply them. The trade adapts itself to the requirements, and the demand regulates the supply.

Every pharmacist knows that preparations are often offered in the market for less than the ingredients of an honestly made preparation would cost. If he buys this preparation, is he not guilty of encouraging and abetting dishonesty? Does the plea that he does not know the character of the preparation, but supposes it to be all right as long as he hears no complaint, exonerate him from the charge that he is wilfully jeopardizing human life and health for the sake of pecuniary profit? Is he any more honest than one who would substitute cinchonine for quinine, or would only give half weight or measure of important medicines?

Does not the fact that price-lists quote "Commercial Red Cinchona" at 14 cents, prove that such stuff is consumed as red cinchona? And is it not likely that "cheap" goods are made from cheap materials?

Every one knows that there are honest and dishonest pharmacists, honest and dishonest manufacturers, and honest and dishonest goods in the market, and the latter kind is by no means rare.

Could we but believe that every pharmacist was honest and competent, and that all medicines were equally efficient, there would be no necessity for the physician to specify. When we have a valuable watch that needs repairs, we do not take it for granted that every one who has a sign before his door, announcing himself to be a watchmaker, is therefore to be trusted with our watch, but we will pass a dozen watchmakers, and go a long distance to take our watch to one we know to be a competent watchmaker. We do not take it for granted that all watchmakers are competent to repair our watch, but our action practically implies the contrary, namely, that we consider them incompetent until we know the contrary.

If then, we are so particular about our watch, why then should we not be equally particular about our much more valuable lives? When we choose a physician, we try to do so intelligently. We have, or think we have, reasons why we prefer our physician to the great number of other physicans around us. Why should we act differently in regard to the pharmacist, and prefer the one who happens to live nearest to us merely on account of this fact?

Should we not rather as patients, prefer to send our prescriptions to one whom we know to be competent and honest, rather than to those who may be equally honest and able, but about whom we know nothing?

Or, as the patient frequently cannot judge, is it not best to trust our physician to choose for us when his interests and ours are so intimately interwoven, for our health and the physician's reputation alike depend upon the quality of the medicine dispensed.

Nay, even more, is it not to the honest and competent pharmacists' interest that business probity and integrity and professional ability should be recognized and appreciated? It is plainly the duty of the physician to advise the patient how and where to obtain the best medicines, and he does

* Read at the Meeting of the Amer. Pharm. Assoc.

so generally by using the prescription blank of the pharmacist whom he prefers. His use of such a blank is clearly a specification of the preparations of that particular pharmacist, and an indorsement of them. It does not seem to occur to those who argue against the physician's right to designate a certain manufacturer's preparations, that he is equally wrong and unprofessional when he uses their blanks. If one is wrong, the other must be the same. In one case it is an indorsement of a wholesale manufacturer, in the other case of a retail manufacturer, with the advantage in specifying the wholesale manufacturer's goods that he can obtain them everywhere and anywhere, while the others are obtainable only in one drug store.

We must admit that there is a difference, and often a great difference, between the various preparations sold under the same name; that some are almost worthless, others very active.

The physician may have become accustomed to the use of a certain preparation, say aconite. He knows what a certain dose of that particular preparation may reasonably be expected to do, and he does not know what action others may have. They may be weaker or stronger, it does not matter to him. He knows what he is about when he specifies a certain dose of that particular preparation, and it is no imputation of incompetency or dishonesty to any one when he specifies it. He simply tries to go sure and take no chances, and to substitute other preparations is dishonesty when we can obtain the one specified, and it is even a question if it would not be better and more honest to decline to fill the prescription rather than substitute without the consent of the physician or patient.

No matter whether we try to argue that ours is just as good; the physician is entitled to get what he prescribes, and he is not to be blamed if he uses his influence against the pharmacist so substituting, for he who is dishonest in small things, cannot be trusted in greater things.

Honesty in all things is the best policy. The retail pharmacist may convince the physicians in his neighborhood that he has the best and purest medicines, in which case the physician will no doubt allow him to use his own preparations. We have known of physicians who specified certain preparations, but have given permission to individual druggists to use their own preparations when the prescriptions were taken to their drug stores. There is no objection to this; it is rarely the case that the physician specifies except in the case of the more important remedies, or when he is not sure to which drug store his prescription will be taken. In regard to the majority of ingredients, he leaves the choice to the pharmacist's judgment. When he does specify, his wishes should be respected and complied with as far as possible.

To conclude, then, it is the writer's belief, based upon many years' experience, that the physician is derelict in a part of his duty if he does not see to it that his patient obtains proper medicines, and he is equally unmindful of his own best interests.

He should therefore specify to the extent that he may know that proper remedies are dispensed, either by directing the patient to go to a certain drug store, or by specifying a particular preparation with which he is familiar, and in which he has confidence, and it is certainly wrong for him to show less interest in so important a matter as medicines than he shows in regard to his wearing apparel, his food or fuel, or any other commodity in regard to which he exercises an intelligent choice.

Pepsau.*

BY HENRY BIROTH, OF CHICAGO.

THIS is an article prepared in 1853 by an old gentlemen, who lived in the neighborhood of Jamestown, Chataqua County, N. Y., leading a solitary life and going by the soubriquet of 'Crazy Owen.' He had often remarked to people of his vicinity that he had made a discovery, for which he claimed rare medicinal virtues, and which would bring him lots of money, but no attention was paid to this, because people generally regarded him as a crank.

After his death, the date of which could not be learned, but which must have occurred soon after he had his product ready for the market, his habitation was visited, when heaps of packages, containing this pepsin, were found, all sealed, wrapped, and packed in dozens; some of it was also found in barrels and in heaps on the floor.

As to the method employed in preparing it, nothing was ever learned, since he lived very secluded and shunned society, and the secret, for such he regarded it, died with him.

These few samples and the above memorandum, were given to me by Mr. F. C. Billerbeck, one of my former clerks, now in business in Chicago. I tested the preparation, it is insoluble in acidulated water, it has no solvent power on albumen, and does not coagulate milk; its age, however, being thirty-one years old, may account for it.

The very characteristic circular surrounding the bottle reads as follows:

"PEPSAU:

"For the cure of Dyspepsau, Jaundice, Liver Complaint, together with all diseases arising from a disorganization of the stomach. This, I believe, is the Gastric Juices of the Stomach of the Ox, producing the Gastric Juice required by man to digest his food. Prepared by Eben Owen; by no other, I believe, in this world.

"Directions for using.—Take a small half teaspoonful, fiften minutes before eating, in a half gill of cold water. My advice is, to eat light suppers.

"Prices for Pepsau, by the gross or more, eighty cents per bottle: retail, one dollar a bottle. This is got up under prayer, and will do good, I believe.

EBEN OWEN.

"APRIL 16th, 1853."

Fungoid Deposit in Dilute Phosphoric Acid.*

BY SAMUEL G. ADE, CHICAGO.

IT has long been observed by pharmacists that in various specimens of dilute phosphoric acid, as usually made, a complex fungoid growth soon makes its appearance, having a somewhat tenacious or mucoid character, diffusible, and of a yellowish-gray color. I have also noticed a deterioration of the solvent power of the acid, corresponding in direct ratio to the fungoid development of the organized deposit. Owing to a want of time, I have been unable to make a quantitative analysis, but have found, by practical experience, that it does not correspond to the requirements of the Pharmacopœia in solvent power, as further demonstrated by the much larger quantity of acid required to dissolve a given weight of quinine. This shows practically that the fungus grows at the expense of the acid. A marked difference was observed in its action on litmus, the acid containing the fungus giving a much feebler reaction; the acid containing no fungus producing a very decided reaction.

The specific gravity of U. S. P. acid is 1.057, while the s. g. of acids containing this deposit were respectively 1.049, 1.053 and 1.055, all of which seem to indicate a general depreciation of value for pharmaceutical use.

Microscopically, the growth was found to consist of a minute network of fibrillated tubules, diverging from central nuclei in all directions, like the radii of a circle. The nuclei seem to occupy and give birth to new prolongations, four, five, or more being closely aggregated in small groups, forming new foci of development. Without doubt these small, spherical bodies (the nuclei) constitute the ferment by which the fungus grows and maintains a progressive existence; thus it is enabled, by the fermentative process, to take such nourishment from its surrounding medium as to depreciate the acid value of the preparation. It is very evident that a deteriorated article, lacking the U. S. P. requirements to the extent here demonstrated, is practically unfit for dispensing, and certainly ought to be rejected. It is better to make dilute phosphoric acid, according to the Pharmacopœia; making the acid extemporaneously when needed. A proper dilution of the full strength U. S. P. preparation, with distilled water, would give us a reliable acid, and exclude the possibility of its detorioration from fungoid changes.

In conclusion, I would be glad to hear from any member of the association upon this subject, and any additional information, on points not mentioned, will be very thankfully accepted.

The Preservation of Plasters.*

BY HUGO W. C. MARTIN.

"LEAD plaster and other plasters of the U. S. Pharmacopœia become hard and brittle by keeping. How can their soft consistence, as when freshly made, be preserved?"

When accepting this query, the writer hardly expected to meet with so many obstacles in trying to solve this problem, and consequently regrets that the results mentioned in this report are not quite satisfactory to himself. The greatest hindrance was the want of a laboratory, the manipulations therefore being necessarily conducted in the store proper, which was certainly disagreeable if not detrimental to the health of the assistants sleeping there at night. Aside from this, the odor given off was of such a penetrating and persistent nature that it would remain on the premises for nearly a week after an experiment, often causing remarks by my patrons, such as "Why, what a funny odor; cooking your supper? Whew, how dis drug store smell, etc." The writer thus has contented himself with trying to solve but the most essential part of the query relating to lead plaster, since lead plaster enters into 12 out of 17 of the officinal ointments. After various trials and experiments on a number of different formulas without any better result than that of the officinal, the writer finally constructed a formula which, if not perfect, at least would seem to be quite an improvement. It is as follows:

Castor Oil	..parts	I.
Olive Oil	"	VIII.
Oleic Acid	"	II.
Oxide of Lead (litharge)	"	VI.
Water	"	XVI. Q.S.

The oxide of lead was first rubbed to a fine powder in a mortar, then mixed with the oleic acid and the oils, and lastly the water, boiling, added to the mixture. This was then boiled for nearly four hours by continuous stirring and the constant addition of boiling or hot water as it was required. At no time was the water entirely evaporated before the product was finished, but on the contrary I probably had excess of water several times, my

*Read at the meeting of the Amer. Pharm. Assoc.

*Read at the Meeting of the Amer. Pharm. Asso.

object being to guard against a sufficiency and to prevent a negative result. The substitution of oleic acid for part of the olive oil would certainly seem to facilitate matters as well as to make a much whiter plaster. The addition of castor oil was based on the following: It is generally supposed that lead plaster owes its soft consistency, in a great degree, to the presence of glycerin.*

If such is the case, and there does not seem to be any reason for doubt, it is probably due to the mechanical action of the glycerin, as the writer has found by actual experiment that fresh lead plaster, if remelted and subjected to boiling in a quantity of water, is deprived of part of its glycerin and causes the lead plaster to become a great deal more brittle. In using castor oil I expected to obtain the same mechanical action, if not a chemical one, in combining with the oleic acid, since we have several acids present in castor oil. As to the chemical action of these acids, the writer does not vouch for. The mechanical, however, is quite perceptible. Though the plaster made after this formula is not quite up to the standard of the Pharmacopœia test as to its solvency in oil of turpentine, I must say that I have come across but very few samples that would not leave some residue or sediment after treating with the turpentine. This can, no doubt, be remedied by the addition of a little more oleic acid to the previous acid, as the residue would indicate unchanged oxide of lead. The sample attending this writing has been subjected to the severest cold we have had last winter, way below zero, and again to the warm weather a week ago. It has never changed its color one particle and has apparently remained the same in consistency during the various climatic changes. It is adherent, yet not excessively sticky, is quite firm yet pliable, and not brittle, and in appearance would seem to be something wished for. At our next annual meeting I will endeavor to answer that part of the query pertaining to the balance of the plasters.

Cinchona Assay.†

BY EDWARD GOEBEL, OF LOUISVILLE.

WITHOUT wishing to criticise the Pharmacopœia, I desire to state my experience with the method recommended by that work for the assay of total alkaloids in cinchona bark. Having had occasion to examine a number of barks recently, I believe the officinal directions may be somewhat simplified and improved without changing the chemical steps of the process, however. By strictly following the directions, viz., "treating 20 Gms. of the powdered cinchona with milk of lime, drying, digesting with 200 C.c. alcohol, transferring to a filter, and percolating 200 C.c. additional alcohol through the powder, I found that the residue in the funnel again treated with alcohol, the liquid filtered and evaporated, left a small quantity of very bitter extract. Subsequently I proceeded as follows: "Place 15 Gms. of cinchona, treated with milk of lime and perfectly dried, in a flask, add 150 C.c. alcohol, weigh the whole, digest the loosely-stoppered flask and contents for about two hours at 150°–160° F., cool, replace the slight loss of weight by alcohol, filter through a covered filter 100 C.c., equivalent to 10 Gms. of bark, and proceed with this extraction practically as directed by the Pharmacopœia." In this way, I think, greater accuracy is insured, besides its being a saving of time and alcohol.

This part of the pharmacopœial directions: "Distil or evaporate the filtrate to expel all the alcohol, cool, pass through a filter, and wash the latter with distilled water, slightly acidulated with diluted sulphuric acid, etc," no one certainly would attempt to follow literally, for after expelling the alcohol there remains in the evaporating capsule but a small quantity of an extract-like mass, and the intent is, no doubt, to have this residue treated with acidulated water in the capsule, and this receptacle also carefully washed.

The precipitated and washed alkaloids are directed to be removed from the filter, transferred to a tared capsule, the filter washed with acidulated water, this liquid treated with solution of soda, any resulting precipitate collected on another small filter, and removed from this to the capsule in which the whole is to be dried. The removal from the filter is presumably directed on account of the low melting point of quinia, but by drying the mixed alkaloids in the tared filter, merely a softening of the mass results, without there being any danger of loss. In conclusion, I may mention that the barks examined ranged in alkaloidal percentage from 5.700 down to 0.250, the former an East Indian red bark, the latter a sample of powdered so-called "yellow bark," and this was, by the way, not the bark which I failed to exhaust by the officinal process of extraction.

The Practicability of Kerner's Test.*

BY HENRY B. PARSONS, OF NEW YORK.

KERNER'S test for the purity of quinine sulphate has been adopted in the latest editions of both the German and the United States Pharmacopœias. The directions of the United States Pharmacopœia are, practically, as follows: One gramme of the quinine sulphate is dried until it ceases to lose weight in a water oven. To the dried residue is added 10 cubic centimeters of distilled water, and the mixture is cooled to 15° C. (59° F.) by setting the dish in iced water, if necessary. This temperature is preserved for half an hour, when the liquid is separated by filtration from the undissolved quinine sulphate. Five cubic centimeters of this filtrate, representing one-half gramme of the original sample, are now to be gently mixed with seven cubic centimeters of water of ammonia of specific gravity 0.96 at 15° C. If the quinine sulphate is of the required purity, the turbidity caused by the first admixture of the water of ammonia should entirely disappear when the mixture is thoroughly accomplished.

The principles upon which this test is based are as follows:

I. The most common impurity of quinine sulphate is cinchonidine sulphate.

II. Drying the sulphate of quinine serves two purposes, the determination of the percentage of moisture, and, as is asserted by German investigators, the rendering more freely water-soluble of the cinchonidine sulphate present as impurity.

III. Keeping the mixture of sulphates and distilled water at 15° C. for half an hour is necessary if uniform results are to be expected, as the solubility of these sulphates is greatly increased by a higher temperature.

IV. The amount of water is also exactly specified, as the quantity of sulphates dissolved depends directly upon the proportion of the solvent used.

V. By experiments made with pure quinine sulphate and with commercial samples containing known amounts of other cinchona alkaloids, Kerner and other German chemists, and in this country Prescott, have all accepted the statement that the five cubic centimeters of filtrates, obtained as above described, should afford a clear solution with seven cubic centimeters of ammonia water of specific gravity 0.96 at 15° C. This requirement is based upon the fact that only a small amount of quinine sulphate ($\frac{1}{17}$) is dissolved by the cool water used, while a much greater quantity of cinchonidine sul- (soluble in 100 parts of water at 15° C.) will pass into solution. Also the alkaloid quinine which may be precipitated by the addition of a portion of the ammonia used in this test is redissolved by the addition of much less ammonia water than would be the case with cinchonidine, quinidine, or cinchonine. Hence, if the specified amount of ammonia water fails to produce a clear solution, the presence of an undue amount of other alkaloid is to be inferred.

The question suggested by this query now recurs. Is this a practical and reliable test whereby a good sample of quinine sulphate may be distinguished from one containing an unauthorized percentage of other alkaloidal sulphates? Anticipating this question, the writer has aimed, during the past three or four years, to satisfy himself in regard to various points which have been raised at different times in connection with the acceptance or rejection of quinine sulphate. On the whole it may be stated that the judicious use of Kerner's test will lead to a safe decision in regard to a given sample of sulphate of quinine. The following are some practical results which have been obtained.

Firstly: If the sample of quinine sulphate is dried as directed by the U. S. Pharmacopœia, the amount of ammonia water required to produce a clear solution is generally, but not always, about 0.5 cubic centimeter greater than where the same sample is not dried before testing. Whether the impurities are rendered more soluble—as asserted by the Germans, or whether the quinine sulphate itself is more soluble, the writer cannot assert from personal experience.

Secondly: This test is liable to mislead, unless every detailed precaution is observed. The sample must be carefully weighed, the distilled water accurately measured, the temperature strictly maintained at 15° C., and, above all, the ammonia water should be of exactly the proper specific gravity, viz., 0.96 at 15° C.

Thirdly: If all these precautions are observed, it is my experience that some brands of quinine sulphate require less than the specified 7 cubic centimeters of ammonia water. The average for the 1033 samples here reported is 6.1 cubic centimeters. Great differences as regards the indications by this test, were noticed for the five brands here reported. The following is a summary:

No.	Maker.	No. of Tests.	Average C.c. of Ammonia water.	No. of Samples rejected
1	American.	16	9.5	16
2	"	217	5.7	1
3	German.	11	6.1	None
4	"	627	6.0	7
5	Italian.	162	6.8	35

All samples rejected required more than 7 cubic centimeters of ammonia water. Brand No. 5, Italian, was delivered in cans of two sizes; the larger cans contained quinine rather more bulky than usual, and it was this quinine which failed to meet Kerner's test.

Owing to the fact that every sample marked here No. 1 American failed to stand the test, it was not deemed advisable to multiply the number of tests. The best of all the brands, as regards purity, seems to be the one marked No. 2 American. Next come Nos. 4 and 3 German, and next No. 5, Italian. Probably the latter would stand about the same as the German brands were it not for the poorer quinine in the large cans above described,

*See Nat. Disp., page xx. Drug. Circ., page 18-81. A. F. W. Neynaber, also Drug. Circ., page 117-81. Ed. S. Sykes.

†Read at the meeting of the Amer. Pharm. Assoc.

*Read at the meeting of the Amer. Pharm. Assoc.

which increased the average amount of ammonia required.

In conclusion, the writer would say that, in his opinion, the careful application of Kerner's test will reveal the presence of undue proportions of such foreign alkaloids as have, up to the present time, been found as natural impurities due to imperfect methods of separation on the manufacturing scale. Whether this test will reveal all possible admixtures of the more recently discovered and more rare alkaloids of true and false cinchona barks is a question not answered as yet, but one deserving further study.

In applying Kerner's test in cases where much depends upon the result, I would advise that several samples be taken from different parts of the same can, as it is frequently true that these samples vary considerably. If the average result is unfavorable, the quinine sulphate should be rejected.

Modification of Kerner's Test *

BY HENRY MACLAGAN, OF NEW YORK.

THIS test is without doubt one of the best yet devised for ascertaining the quality of sulphate of quinine, lowering as it does to a minimum the possible quantity of cheaper alkaloids, but, while it is very useful in the hands of the chemist in his laboratory with every convenience at hand, there are several difficulties in the way of its every-day use by pharmacists generally. Its accuracy depends so much upon conditions not always readily secured, that I deem it not a safe test in any but experienced hands. Water of ammonia of certain strength, and an almost absolute correctness of temperature are required, and there are few retail pharmacies in which these requirements can be met. Thermometers, even the best, vary somewhat, and a single degree makes considerable difference here, and even if the examiner were possessed of an accurate instrument, it is not an easy matter to maintain a constant temperature for half an hour as directed. The strength of the ammonia is perhaps more easily regulated, but even here there is a chance of error, and everything considered, I think it must be admitted that Kerner's test is somewhat liable to lead to erroneous or valueless conclusions.

A modification of it which I have used for some time, and which gives equally correct results, regardless of temperature, etc., is as follows:

About one-fourth of an ounce of sulphate of quinine known to be pure or nearly so, is placed in an eight-ounce stoppered bottle, the bottle filled with water and well shaken. This forms a standard solution, the excess of sulphate keeping the solution always saturated at any temperature. On the same shelf with this are kept, water of ammonia (about 0.960 is best) and distilled water, so that all three are always the same temperature. When a sample of quinine is to be examined (compared is a better word), about one gramme of it is put in a stoppered bottle with about 10 c.c. of the water, the bottle placed on the shelf by the side of the standard solution, and both shaken at intervals for half an hour. Five c.c. of the standard solution are then filtered off, and the quantity of ammonia necessary for a clear solution ascertained; the same quantity should give a clear liquid with five c.c. of the solution to be tested, if the quinine was pure. Or if it is desired to make allowance for one or two per cent or more of cinchonidine (the most common impurity) that salt can be added to the pure sulphate, and the standard solution made of the mixture in the proportion of 1.0 gramme to 10 c.c. of water, the solution to be tested being made in the same way. Pure sulphate of quinine for the standard solution can be had by recrystallizing ordinary sulphate about three times. It is then pretty certain to be pure. The solution will keep indefinitely.

* Read at the meeting of the Amer. Pharm. Assoc.

Soap for Removing Stains.

IT has been for long a great desideratum to obtain an article really possessing the frequently rather contradictory properties and qualities demanded of such an article. Many productions have indeed been well pushed for the purposes in question, but the effective articles are few and far between. Only too often the much vaunted "stain soap," consists of nothing else than cocoanut soap, and does not contain a trace of either ox gall, turpentine, or any other ingredient suitable for increasing the detergent powers of a soap. A favorite trick, according to *Moniteur de la Teinture*, employed by unscrupulous demonstrators of the efficacy of the article in which they deal, is removing a stain which they make on a piece of cotton cloth with a brush charged with gas tar. If, however the tar used be examined, it will be found that it has been well mixed beforehand with strong acid, and so can be removed almost as well without soap.

A good stain-removing soap ought always to smell rather strongly of turpentine or similar compounds. In the glove-cleaning trade the quality of the soap specially prepared is of the highest importance, and much attention is paid to this article by careful operators. There is no reason whatever why a special article for removing accidental stains, which do occasionally occur in even the best managed works, should not be prepared in every bleach, dye, and print works, especially as there is often the necessary skilled chemical superintendence ready at hand in the person of the works' chemist. We give the two best formulæ known, with full directions for preparing the soap satisfactorily:

Take 22 pounds of the best white soap and reduce it to thin shavings. Place it in a boiler, together with

Water	8.8 lbs.
Ox gall	13.25 lbs.

Cover up and allow to remain at rest all night. In the morning heat gently, and regulate it so that the soap may dissolve without stirring. When the whole is homogeneous and flows smoothly, part of the water having been vaporized, add

Turpentine	0.55 lbs.
Benzin, best clear	0.44 lbs.

and mix well. While still in the state of fusion color with green ultramarine and ammonia, pour into moulds, and stand for a few days before using. The product will be found to act admirably, and the yield is very good indeed. The second method we shall give is rather more difficult to carry out than the former one, as it requires a little skill in soap boiling to prevent the soap coming out unevenly on stirring, and the introduction of the ox gall requires to be done carefully.

Take of

	Lbs.
Cocoanut oil	27.5
Tallow	2.2
Soapstone (talc)	4.4
Caustic soda, sp. gr. 1.349 lbs.	15.4
Ox gall	6
Turpentine	0.3
Benzin	0.1
Brilliant green	0.1
Ultramarine green	0.05

Melt the fat, add the stone and color, cool to 20° C., and then add the solution of soda. When all is well united and mixed, add, very gradually, the gall, continuing the agitation without stopping for some time after all has been added. Should any separation take place, cover the boiler up for a few seconds, and if this does not help, fire up again, and continue stirring. Lastly, add the turpentine and benzin. Pour into moulds, and stand before using. This preparation, when properly applied with a brush, will remove the most refractory stains without injury to the cloth.—*Scient. Amer.*

Tasteless and Odorless Solution of Valerianate of Ammonium.

MR. R. ROTHER proposes to render valerianate of ammonium odorless and tasteless by adding borax to its solution. According to his investigation, the result of adding borax to an aqueous solution of ammonium valerianate (rendered alkaline by ammonia) is the formation of valerianate of sodium, metaborate of ammonium, and metaboric acid.

The following formula is recommended:

	Grains
Ammonium Valerianate	119
Borax	191
Water of Ammonia	q. s.
Distilled Water, enough to make	8 fl. oz.

Mix the valerianate with 1 fl. oz. of distilled water, and add water of ammonia, drop by drop, until a clear and slightly alkaline solution is produced. Then add 2 fl. oz. of distilled water and the previously powdered borax, and when all has dissolved, excepting a few contaminating crystals of borate of calcium, and distilled water to the measure of 8 fl. oz. and filter.

The solution contains practically two grains of the sodium valerianate in one fluidrachm. It is not absolutely odorless, but is free from the peculiar objectionable valerianic odor.—After *Am. Journ. Pharm.*

Elixir of Pepsin.

P. VIGIER, the author of the *Elixir de Pepsine* of the first edition of the new French Codex, explains why he chose the formula there published, which does not prescribe any aromatic, and the omission of which has been unfavorably criticised.

When a liquid containing less than 12 per cent of absolute alcohol is used for making the elixir, the latter does not keep well. If the alcoholic strength is over 18, a good deal of pepsin is precipitated. For this reason, a strength of 12 to 15 per cent of alcohol is preferable. In constructing the formula of the elixir, he desired to produce a mixture of water, alcohol, and syrup, which was intended to be flavored *according to taste*, since the flavor appeared to be a minor consideration.

Good flavoring-materials for this purpose are rum, kirsch-wasser, and vanilla. With rum, for instance, the following would be a good formula:

Pepsin (pure)	20 parts
Distilled Water	335 "
Syrup	400 "
Rum (45% alc.)	265 "

Macerate the pepsin in the mixed liquids [better: dissolve the pepsin in the water, then add the syrup and rum.—ED. AM. DRUGG.], and filter after twenty-four hours.

This elixir contains about 10 per cent of alcohol, or about 15 per cent, if the amount of sugar be deducted.

During these experiments, Mr. Vigier says that he has noticed that all pepsins are not equally adapted for making alcoholic solutions. Amylaceous pepsin [such as Boudault's] produces very good solutions of this kind, according to the author. English pepsins obtained by scraping the mucous membrane of the stomach are almost insoluble, and produce very unsatisfactory solutions. Saccharated pepsins, prepared by precipitating the ferment with common salt and subse-

quent admixture of sugar of milk, though they are very soluble, *yield only very feeble alcoholic solutions*, which is probaby due to the fact that the pepsin is still mixed with some common salt.

But there are also some pure ("extractive") pepsins which yield alcoholic solutions of feeble power. Hence it is *always* necessary to assay the product by making an artificial digestion.

Glycerin, which has been vaunted as an excellent solvent and preservative of pepsin, is not recommended by Mr. Vigier, who says that it produces feebly-active solutions.

It has been proposed to add diastase (ptyalin) and pancreatin to liquid preparations of pepsin; but this combination is altogether irrational. Hydrochloric acid has likewise been much recommended as an addition to bring out the digestive power of pepsin; yet this is not at all necessary, as it does not suit every case, and does *not* augment the digestive power, as the author states he has ascertained by numerous experiments.

In assaying alcoholic preparations of pepsin, the latter must be diluted with water, since without the latter they do not dissolve any fibrin. It is best to add 3 parts of acidulated water to every 1 part of wine or elixir of pepsin.

IMPROVEMENT IN WASH-BOTTLES.

EVERY analyst is aware that on blowing into an ordinary wash-bottle, the jet issues at first with a considerable violence, not unfrequently causing a loss of a portion of the precipitate or liquid contained in the filter.

The cause of this violent squirting is evident, being due to the contraction of the forcibly projected jet by the narrow orifice of the delivery tube. On ceasing to blow, the column of water sinks back, but on again blowing the same troublesome phenomenon recurs.

The following arrangement easily removes this inconvenience. A portion of the tube, inside of the wash-bottle, and dipping into the liquid is cut off, and a small vent-tube attached to it by a piece of rubber-tubing. The accompanying cut illustrates this vent-tube. Into its conical portion, a piece of glass rod is ground in air-tight. On blowing, this glass-valve is raised and only enough water can pass it to deliver a moderate jet. When blowing is discontinued, the valve falls back into its seat and the column of water standing above it is prevented from flowing back. On again blowing, the jet will be delivered without undue force, as before.—*Ber. d. Deutsch. Chem. Ges.*, 1884, 1080.

Why is the Tropical Man Black?

SURGEON MAJOR N. ALCOCK has contributed to *Nature* (Aug. 21st, p. 401), an interesting communication on the reason why tropical man is black, in which he suggests that, as in the lowest animals pigment cells placed behind a transparent nerve termination exalt its vibration to the highest pitch, the reverse takes place when, as in the negro, the pigment cells are placed in front of the nerve terminations, and that the black pigment in the skin serves to lessen the intensity of the nerve vibrations that would be caused in a naked human body by exposure to a tropical sun, that in fact the pigment plays the same part as a piece of smoked glass held between the sun and the eye.—*Pharm. Journ.*

Mercurous and Mercuroso-Mercuric Iodides.*

BY HENRY MACLAGAN, OF NEW YORK.

AFTER reading over the physical characters of mercurous iodide as given in the various pharmaceutical and chemical works, a student of chemistry would scarcely imagine that the substance under consideration was a definite chemical compound, or accepting this fact, would not have as high an opinion of the inflexibility of chemical laws as they are entitled to. One authority states that its color is dark olive-green, another that it is yellowish-green, another greenish-yellow, and still another says yellow, and it is scarcely possible that these differences can be due to mere errors of judgment on the part of the describers, the variation being too wide to admit of this theory. What, then, is the cause of this difference? There is but one answer to that question, viz., that the substances described were not pure mercurous iodide, and the variations in color were simply due to varying proportions of impurity. The very method of its manufacture, the direct union of the two elements is in itself sufficient to prove that, as a slight consideration of it will show. When chemical equivalents of mercury and iodine are rubbed together, some red iodide is always formed. This cannot well be prevented, and it is only by long-continued trituration that it can be reduced, and no maker ever takes the trouble to do this; but after a certain point is reached, is contented with washing out the red with alcohol. The resulting product then is clearly not pure mercurous iodide, but a mixture of this and metallic mercury, for it is plain that, if a part of the mercury takes double its share of iodine, another part must go without any, and different proportions of free metal easily account for the various colors. From a medical point of view, there is perhaps not much objection to a little of this, as it can have but little other effect than to lessen the actual amount of iodide in the dose given; still even this is not desirable when the quantity varies from three to eighteen per cent, as the writer has found it.

If to a solution of mercurous nitrate in water, acidulated with nitric acid, potassium iodide is slowly and cautiously added, a precipitate is produced which is of a pure yellow color, and which, when washed with water and dried, is about twice the weight of the potassium iodide used. Alcohol shaken with it and dropped into water gives no evidence of red iodide, and repeated careful analyses shows its composition to be, in 100 parts: iodine, 38.8; mercury, 61.2; in other words, that it is mercurous iodide. Assuming, then, that mercurous iodide is yellow, it becomes a very easy matter to account for the greenish color of most commercial samples, because we know that finely-divided mercury is blue, and that blue and yellow make green. That the pure salt is yellow, it is hoped will be established by the facts here given and the specimens which accompany this paper.

Nos. 1–5 inclusive are specimens purchased in market, and are shown to illustrate the unequal results of the usual methods of manufacture. Analyses accompany each, and it will be seen that the greenish color is exactly in proportion to the amount of free mercury present, and that the nearer the salt approaches purity the more yellow it becomes. No. 1, with sixteen per cent of free mercury, is a dark olive-green, and No. 4, with only three per cent, is almost a pure yellow. No. 5 contains eight per cent of free mercury and ten per cent of red iodide. Nos. 6 to 10 are all pure mercurous iodides, as shown by analyses, prepared in different ways, and it will be observed that the yellow color is uniform throughout. No. 6 was made by precipitating a solution of mercurous nitrate with potassium iodide; No. 7 by the reduction of mercuric iodide with hypophosphorous acid; No. 8 by adding to a solution of mercurous nitrate a solution of potassium iodide, to which iodine had been added; No. 9 by the addition of alcoholic solution of iodine to a solution of mercurous nitrate; and No. 10 by the U. S. P. method, using a little excess of iodine towards the close to insure the absence of free mercury. Nos. 8 and 9 will be referred to again further on. In all these cases the products are similar, not only in color, but in chemical composition, as shown by analyses, all of them being pure mercurous iodide.

In Watt's "Dictionary of Chemistry," the U. S. Dispensatory, and other works, is described an iodide intermediate between mercurous and mercuric iodides, having the composition Hg_3I_4, called mercuroso-mercuric iodide, and is said to have a yellow color. I have not yet succeeded in making such a compound, but am convinced that the one described by Watt is nothing but mercurous iodide. He states that mercuroso-mercuric iodide may be made by rubbing mercuric iodide with one-third as much mercury as it already contains, or by adding potassium iodide to a solution of mercurous nitrate, "not collecting the precipitate until it has acquired a yellow color," and also by adding to a solution of mercurous nitrate, some potassium iodide solution to which "half an atom of iodine has been added." A solution of mercurous nitrate was treated as directed, with the solution of iodine in potassium iodide, the latter being slowly added with constant stirring. For a time a bright yellow precipitate was produced, with colorless supernatant fluid, then the color of the precipitate began to deepen to orange, and finally, long before the mercury in solution was exhausted, the reagent was throwing down a bright scarlet powder. A second solution was treated with the same reagent until the color of the deposit was of a reddish orange, when a little of it was collected and shaken with alcohol, the color soon became bright-yellow as at first, and the alcohol, dropped into water, gave abundant evidence of red iodide, showing that the orange powder was a mixture of the red and yellow salts. Some fresh solution was then treated, not going very far with the precipitation, so as to collect some of the pure yellow salt for analysis; this, when collected and dried, was free from taste or smell, wholly volatile, and, treated with alcohol, gave no evidence of the presence of red iodide. 0.654 gramme of it was placed in a beaker with a little alcohol and a standard solution of iodine added until a slight excess of iodine was apparent, showing that it had all been converted into red iodide. Union took place almost instantly, and the amount of iodine used was 0.258 gramme, and the solution of one centigramme of the yellow salt removed all trace of free iodine. These figures, of course, indicated that it was mercurous iodide, and not Hg_3I_4; for, if the latter, 0.106 gramme of iodine should have been sufficient. One gramme of the salt was then boiled with an alkali until decomposed, and the iodine estimated with nitrate of silver; 0.715 gramme of silver oxide was obtained, again proving that the salt was HgI.

It may, at first sight, seem difficult to account for its formation under the circumstances. My theory is as follows:

$$4HgNO_3 + 2KI + I = 3HgI + 2KNO_3 + Hg(NO_3)_2$$

In other words, a part of the mercu-

* Read at the meeting of the American Pharmaceutical Association.

rous nitrate is thrown out as mercurous iodide, and the rest changed to mercuric nitrate. This, I think, is shown clearly by the fact of obtaining first yellow and then red iodide from a solution of mercurous nitrate, which, treated with potassium iodide alone, would have yielded yellow iodide to the end. The second method described by Watt was also tried with the same result, as far as the nature of the salt obtained is concerned. If to a solution of mercurous nitrate an alcoholic solution of iodine is added, precisely the same thing occurs, first yellow, then red, and the yellow, on analysis, proves to be the same as the other.

In the National Dispensatory (Stillé and Maisch), mercuroso-mercuric iodide is said to be formed when mercurous iodide is sublimed. A reddish-brown crystalline sublimate is the result of this treatment, which certainly has peculiar properties, but its composition I have not yet had time to determine.

The Purity of Commercial Cream of Tartar.*

BY GEO. W. KENNEDY.

"PHARMACISTS often have the price of cream of tartar sold by grocers held up to them as a standard of the value of this substance. What proportion of the cream of tartar sold by grocers and by druggists will conform to the U. S. P.?"

In order to answer this query satisfactorily, I obtained samples of the salt, for which I am indebted to members of this association, druggists, and grocers residing in Chicago, Cincinnati, Boston, Brooklyn, Philadelphia, Baltimore, St. Louis, Washington, Richmond, Louisville, Indianapolis, Williamsport, Pa., and Pottsville, Pa. Two samples were obtained from each of the above-named places, one from a grocery store and one from a drug store, excepting Indianapolis, from which place I received three packages—two from druggists and one from a grocer.

Before giving the results of my investigation, I would say that I am well pleased to know that but a few of the twenty-seven specimens under consideration were found to be sophisticated. They also exhibit a decided improvement as compared with a number of samples examined by the writer† in 1882, when of ten samples sold by grocers, not one was found to be pure. This year, of the fourteen samples obtained from druggists, I found but one adulterated, and that containing approximately 27 per cent of a mixture of chalk, alum, and starch. The other thirteen samples contained a small percentage of tartrate of calcium, 5 to 15 per cent of which is known to be found in cream of tartar, and is not considered an adulterant, as it cannot be removed in the process of recrystallization. Of the thirteen specimens procured from grocery stores, seven were found to be adulterated. The percentages of impurities are as follows: 20.25, 28.50, 76., 77., 78., 87.50.

Of the cream of tartar sold by druggists, one sample in fourteen was found to be adulterated, or about 7 per cent. With the grocers' samples, seven in thirteen were found to be impure, or about 50 per cent.

In searching for sulphates and chlorides, one drachm of the salt was added to one ounce of warm water, portions of the clear liquid, after being cooled, were acidulated with a few drops of nitric acid, and then tested with barium nitrate for sulphates, and with argentic nitrate for chlorides.

In testing for starch, the substance was digested in aqua ammonia (sp. gr. 0.960), and the insoluble portion then boiled with water, when a small quantity of iodine tincture was added.

The balance of the investigation was conducted as advised by Stillé and Maisch, viz., by dissolving the substance to be examined in an excess of ammonia water, in which it should be completely soluble, and the solution should not be precipitated by hydrosulphuric acid (absence of copper and iron), or by oxalate of ammonium (absence of calcium salts). If cold hydrochloric acid is added to the residue left after treatment with ammonia, the terra alba, starch, and some gypsum undissolved will remain insoluble, and effervescence will follow if chalk is present. The acid solution mixed with an excess of ammonium, or sodium acetate, should not yield white precipitates with ferric chloride (phosphates), ammonia (alumina), or carbonate of ammonium (calcium salts).

The packages obtained at drug stores, with few exceptions, were neatly tied up and labelled; the packages obtained from grocery stores, with two exceptions, were not labelled and were unsightly.

* Abstract of a Paper read at the Meeting of the Amer. Pharm. Assoc.

† Proceedings of the Pennsylvania Pharmaceutical Association, 1882, p. 144.

Antiseptics and Bacteria.

THE following data are taken from an article by P. Miguel, published in the *Annuaire de Météorologie* for 1884. The quantities represent the weights in grammes of antiseptics which prevent the putrefaction of one litre of neutralized beef broth.

	Gm.
Mercuric Iodide	0.025
Silver Iodide	0.030
Hydrogen Peroxide	0.050
Mercuric Chloride	0.070
Silver Nitrate	0.080
Osmic Acid	0.15
Chromic Acid	0.20
Chlorine	0.25
Iodine	0.25
Auric Chloride	0.25
Platinic Chloride	0.30
Hydrocyanic Acid	0.40
Bromine	0.60
Cupric Chloride	0.70
Chloroform	0.80
Cupric Sulphate	0.90
Salicylic Acid	1.00
Benzoic Acid	1.10
Potassium Cyanide	1.20
Aluminic Chloride	1.40
Zinc Chloride	1.90
Sulphuric, Nitric, Hydrochloric, and Phosphoric Acids	2.00 to 3.00
Carbolic Acid	3.00
Alum	4.50
Tannin	4.80
Arsenious Acid	6.00
Boracic Acid	7.00
Ethylic Alcohol	95.00
Sodium Hyposulphite	275.00

[This list will cause surprise in many quarters. The only criticism permissible is to cite the experiments of M. Miguel.]

Mention is made of the fact that naphthalin is powerless as an antiseptic when purified from phenol or other bodies. Even when present in such quantities that the beef broth is filled with solid pieces, the development of bacteria is not prevented.—*Mon. Scient.* and *Journ. Am. Chem. S.*

Barbadoes Aloes in St. Helena.

IN a recent report on the island of St. Helena, Mr. Morris, of the Royal Botanic Gardens, Jamaica, says:

"Another member of the aloe family, which is very abundant on the island, and capable of being largely utilized, is the Barbadoes Aloe ("Aloe Vulgaris"). It grows freely in Jamestown Valley in volcanic ash, and on barren rocks. It is fast spreading also in Ruperts Valley; and I noticed it was there used, and seemed to flourish, as a coping for a stone wall.

"This plant, so hardy and prolific, produces the aloes of medicine, and it is cultivated, especially at Barbadoes in the West Indies, solely for this purpose. It reproduces itself by means of suckers around the stem; these being removed when about six inches high are planted out on waste pieces of land, about two feet apart. When fully grown, and just before flowering, the outer and older leaves are first removed; they contain an abundance of a thick yellowish juice, which is allowed to drain into troughs leading into a large iron pot or caldron. When the pot is nearly filled, it is placed over a fire and the juice boiled until it has attained the consistency of thick glue; this, when cool, is the aloes of commerce, and it is usually exported to England in bottles or gourds.

"Barbadoes aloes, prepared in the manner above indicated, is valued in the London market at £4 to £8 per cwt. It is usually retailed by druggists at 4/6 per pound. This industry, which necessarily must be very small, might commend itself to the notice of many people, especially fishermen and others, living in the lower valleys. The plant is abundant; its cultivation, if merely putting a few suckers in the ground can be so called, is of the simplest description; and the preparation of the juice requires only a few troughs, made by nailing a couple of pieces of board at right angles to each other, and an iron pot. If some local tradesmen were to give attention to the subject, and undertake to purchase the manufactured aloes from the cultivators in small quantities, the industry would soon be placed upon a satisfactory footing."—*Pharm. Journ.*

The Separation and Estimation of Digitalin, Digitaleine, and Digitine.*

AFTER criticising the method of Nateville and the so-called German process, the author proposes to exhaust the plant with water, to filter through animal charcoal until entirely decolorized, and to precipitate the filtrate completely with lead acetate and alcoholic ammonia as long as a precipitate is produced. This last precipitate consists of lead oxide and the glucosides of digitalis. It is washed on the filter, mixed up with water to a thin paste, and completely decomposed by treatment with hydrogen sulphide. The entire mass is then placed upon a filter. The watery liquid contains all the digitaleine, whilst digitalin and digitine remain undissolved in admixture with the lead sulphide. If this residue is treated with chloroform, the digitaline is dissolved and can be obtained in crystals on evaporating the solvent. The residual lead sulphide is treated with alcohol which dissolves the digitine. This substance remains behind in a state of purity on the escape of the alcohol. The lead-precipitate of digitalin may be distinguished from those of picrotoxine and solanine as follows:

1—The precipitate of picrotoxine is more slimy, and on the addition of strong sulphuric acid becomes saffron yellow. 2—The precipitate of digitalin is gelatinus, and on treatment with sulphuric acid becomes flesh-colored or buff. 3—The precipitate of solanine is granular, and on treatment with sulphuric acid turns to a deep buff. If a little sugar is then added to the mixture, it takes, after some time, a violet color which ultimately becomes blue.—*Zeitsch. f. anal. Chem.; Chem. News.*

A pharmaceutical establishment in Berlin, founded nearly 400 years ago, has recently been sold for $300,000.

* Abstract of a paper by R. Palm.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 10. WHOLE No. 124

FRED'K A. CASTLE, M.D., - EDITOR.

CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

OCTOBER, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00

SINGLE COPIES, - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

ELSEWHERE in this number we publish two elaborate articles on the subject of percolation as a pharmaceutical process, and it is but recently that other papers have appeared which referred to the same subject. Altogether enough has been written, since the process first came into general use, to fill a volume of considerable size, but there may be some question as to whether a few of the recent contributions are not in the nature of finely-spun theories rather than practical observations. Each writer seems to consider his view of the subject entitled to great attention, but one cannot help feeling, after reading these extended dissertations, that it may be possible that the subject is somewhat over-written.

Thus far, but little that is worthy of note has been said about the effect of various modes of percolation upon the remedial effects of drugs, although it must be acknowledged that this is quite as important as any phase of the subject.

One of the most important additions to the literature of percolation is a circular lately received, announcing a new [?] patented percolator, which informs us that:

"In rhythmic harmony Nature's Laws unfold to the smile of Scientific Genius, as the budding flower blossoms to the sun.

"The new application of a Universal Law of Nature to the extraction of the Vital Active Medical Principles of Plants.

"A novel process, by which the most Complex Medical Virtues of Drugs are completely extracted in thirty minutes.

"Superb in its construction, grand in its achievements, unlimited in its possibilities, unrivaled, it stands alone upon the merits of Perfection.

"The most sublime Pharmaceutical Invention ever made, creating the new Sciences of Centrifugal Distillation, and Radiate Percolation.

"The majestic beauty of this perfect process elevates the Practice of Medicine from an Experimental Art to a Mathematical Science.

"Odoriferous distillation, generated by heat, is now superseded in Centrifugal Distillation, by the elastic transmission of atmospheric molecular activity.

"Extraction by former methods of parallel or convergent roads of displacement is now superseded in radiate percolation, by the scintillation of the diffusive solvent fluids to the periphery of a sphere.

"All the preparations made by the Vacuum-Press Percolator possess four times the Equivalent in Medical Activity of the same preparation made by any other known process.

"Medical herbs, roots, barks, leaves, flowers, and fruits yield, with Divine homage, their Aromatic, Vital, Curative Potencers to the magic power of the Vacuum-Press Percolator.

"We solve the mystery of ages, unravel the secrets of time, and discover the Fountain of Aqua vitæ of Oriental Sages.

"To the Scientific World:—I proclaim my discovery of Natural Law of Vacuum-Press Elastic Transmission of Normal Atmospheric Equilibrium Activity."

No one who can write to such sublime heights of eloquence when describing a mere percolator should waste his genius on such an ignoble subject, and he should, instead, invoke his muse in behalf of some poroused plaster, corn-salve, rat-exterminator, kidney cure, or remedy for hog-cholera, ere it is too late.

If the executive committee of the N. R. D. A. could announce an address by this intellectual phenomenon at their next meeting, there can be no doubt that even the first session would be packed.

WE referred in our August number to the investigation then being made by the health authorities of New York and Brooklyn, of the alleged contamination of carbonated drinks, as sold by druggists. The result, in the latter city, has been an order from Health Commissioner Raymond, prohibiting:

"The storage, keeping, selling, or having for sale of soda water or mineral water in tin-washed copper fountains or vessels.

"The storage, keeping, selling, or having for sale of soda water, mineral water, syrups, or flavoring extracts in vessels composed in whole or in part of copper, lead, or other poisonous substance, in which the soda water, mineral water, syrup, or flavoring extracts come in contact with the copper, lead, or other poisonous substance.

"The selling, delivering, or draughting of soda water, mineral water, syrups, or flavoring extracts through pipes, faucets, or taps composed in whole or part of copper, lead, or other poisonous substances, unless such pipes, faucets, or taps are so lined, coated, or protected that the soda water, mineral water, syrup, or flavoring extracts cannot come in contact with the copper, lead, or other poisonous substance composing the same."

It is stated, moreover, that the chemist of the Brooklyn Health Department found that in fifty-five leading drug stores, the syrups in eight, and the soda or mineral waters in seventeen, contained copper in harmful quantities. "All the tin-washed copper fountains," says the *N. Y. Daily Tribune*, "had copper in the soda."

Newspaper reporters are not always well informed of matters upon which they express themselves, and we are disposed to be somewhat incredulous as to the harmful proportion of the copper discovered.

It is not long since a discussion took place in English and French scientific journals about the harmful effects following the consumption of canned peas to which a copper salt had been intentionally added for the purpose of heightening their green color. One eminent member of the French Academy went so far, in his desire to protect a local industry, as to claim that the presence of the copper-salt, instead of being harmful, rather improved the quality of the peas as a food. It is possible that his views of the question were somewhat influenced by the local prejudice, but in the case of our readers whose carbonated drinks are found to contain this metallic ingredient, the sympathies of the public are strongly in the other direction; and unless it is desired that the profits from the sale of "soda" shall follow those generally derived from "patents," the sooner efforts are made to assure the public of the purity of all waters and syrups sold, the better for the business generally.

Every pharmacist has at hand the means for ascertaining the presence of even a trace of copper in the waters and syrups dispensed by him. So long as circumstances influence his use of tin-lined copper retainers and draught apparatus, he should assure himself of the wholesomeness of his beverages.

A HOLIDAY number of the AMERICAN DRUGGIST is to be issued in November, on which special pains will be taken to render it attractive to the retail trade. Like the first number of this volume, it will be sent to the entire drug-trade of the United States, and it is intended to make it of sufficient importance, in this and other ways, to be unusually desirable for advertisers. Already much of the advertising space has been taken, and those who wish to avail themselves of the opportunity for reaching the retail pharmacists should address the publishers of the journal without delay.

OUR readers will be pained to learn of the ill health of Mr. Henry B. Parsons, formerly on the editorial staff of this journal, and who quite recently became the editor of the *Druggist's Circular*. During his service as one of the chemists of the Department of Agriculture, in Washington, and since then as the chemist in charge of W. H. Schieffelin & Co.'s laboratory in this city, he has doubtless over-taxed his strength at a time of life when pulmonary disease is most likely to be developed. An attack of hemorrhage occurred during his attendance at the meeting of the American Pharmaceutical Association, in Milwaukee, which may disable him for active work for a time, but it is certainly the hope of every one who knows him that with rest and careful attention he may soon be restored to health. The pharmaceutical profession can ill afford to lose, even for a few weeks, the services of so valuable a worker as Mr. Parsons.

Standard Dimensions for Percolators.*

BY OSCAR OLDBERG, OF CHICAGO.

ALL the ready-made percolators obtainable in the market up to this time are absurd as to their proportions, and should be discarded as soon as percolators of proper form and dimensions can be found. They are much too short in proportion to their diameter; a glass percolator seventeen inches in length being ten inches in diameter at the top, when it ought to be about three inches. They are generally of very irregular form, and instead of being very slightly conical, they are either perfectly cylindrical or as tapering as a sugar loaf. In most of them the tops are so irregular that they cannot be covered tightly when desired. Their stems are badly shaped and of too small bore, so that it is frequently difficult and sometimes impossible to insert the cork.

The object of this paper is to present in a concise manner the practical lessons taught in our extensive literature on percolation, so far as relates to the apparatus, and to suggest how we may utilize these lessons. I propose to summarize the conclusions to be derived from the able and exhaustive studies of Dr. Squibb, Professors Diehl, Lloyd, Remington, and others, which agree with my own experience. There will be nothing new, therefore, in the propositions here submitted; but I feel that a service will be performed by placing them together so that they may be reviewed with ease:

1. Simple percolation is on the whole the best form in the hands of pharmacists operating on a small or moderate scale, being easier and safer, and yielding, when the official directions are followed, more uniform results. Re-percolations or fractional percolation can be profitably carried out only on a comparatively large manufac turing scale. Simple percolation is accordingly the process to which preference has been given in the Pharmacopœia of the United States of America.

2. Simple percolators, when properly constructed and used, are decidedly preferable to any patent apparatus with which I am acquainted, both in point of economy and efficiency.

3. Tall and narrow percolators—considerably taller in proportion to their diameter than any heretofore obtainable in the market—are necessary to insure the proper exhaustion of the drug with a moderate quantity of menstruum, simple percolation being the process followed.

4. As the sole object of using a tall and narrow percolator is to increase the height of the column of drug and menstruum in proportion to their mass, it is evident that, in using any percolator, it is necessary to pack it as nearly full as practicable, leaving only just enough space at the top to enable the adding of menstruum as required.

To use a tall and narrow percolator, packing it only half full, is of course equivalent to using a short percolator.

5. It is, therefore, an imperative rule that, instead of making a certain fixed quantity of fluid extract, or tincture, or other percolate, without sufficient regard to the size of the apparatus available for the operation, we must invariably adjust the quantity of drug to suit the percolator. Thus, if the percolator is large enough for seventeen or eighteen troy ounces, it is wrong to put only sixteen troy ounces in it.

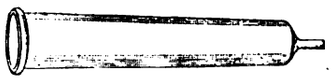
6. From these conclusions it follows, further that a sufficient variety of sizes of percolators must be found in the shop or laboratory of every pharmacist who has the commendable ambition to make his own fluid extracts and tinctures. For each percolate he wishes to make, he must have a percolator large enough to obviate any necessity for using it too many times in order to obtain a sufficient quantity of product, and at the same time sufficiently small to enable him to fill it without obtaining a greater quantity of product than he can use.

7. There are not now in the market any percolators which reasonably fulfil the requirements necessary to enable the pharmacist to conveniently carry out the official directions for percolation under circumstances favorable to satisfactory results.

These considerations led me to adopt a set of fixed dimensions for percolators, such as are in my opinion most suitable for general use in the preparation of fluid extracts and other preparations in accordance with the excellent details of manipulation given in the latest revision of the Pharmacopœia of the United States (pages xxxvi. and xxxvii.). These dimensions have been adopted by the Chicago College of Pharmacy for the percolators to be used in its new pharmaceutical laboratory, and are herewith presented in tabular form.

STANDARD PERCOLATORS OF THE CHICAGO COLLEGE OF PHARMACY.

SIZES.	APPROXIMATE CAPACITY.		LENGTH OF BODY.		INTERNAL DIAMETER AT THE TOP.		INTERNAL DIAMETER OF BODY AT THE SHOULDER.		DEPTH OF SHOULDER.		LENGTH OF STEM (OR NECK.)		INTERNAL DIAMETER OF STEM AT THE THROAT.		INTERNAL DIAMETER OF STEM AT MOUTH OR EXIT.		LENGTH OF RUBBER TUBE.	
	C.c.	U. S. fl. meas'r.	Millimeters.	Inches.	Millimeters.	Inches.	Millimeters.	Inches	Millimeters.	Inches.	Millimeters.	Inches.	Millimeters.	Inches.	Millimeters.	Inches.	Millimeters.	Inches.
1	90	3 fl oz	150	5.09	30	1.181	25	.984	4	.157	30	1.181	10	.394	12	.472	200	7.87
2	150	5 "	180	7.09	36	1.417	30	1.181	6	.236	30	1.181	10	.394	12	.472	240	9.45
3	240	8 "	210	8.27	42	1.654	35	1.378	8	.315	30	1.181	10	.394	12	.472	280	11.02
4	360	12 "	240	9.45	48	1.890	40	1.575	10	.394	30	1.181	10	.394	12	.472	320	12.60
5	580	18 "	270	10.63	54	2.126	45	1.772	12	.472	35	1.378	13	.512	15	.591	360	14.17
6	740	25 "	300	11.81	60	2.362	50	1.968	14	.551	35	1.378	13	.512	15	.591	400	15.75
7	1,240	42 "	360	14.17	72	2.835	60	2.362	16	.630	35	1.378	13	.512	15	.591	480	18.89
8	1,960	66 "	420	16.53	84	3.307	70	2.765	18	.709	35	1.378	13	.512	15	.591	560	22.05
9	3,000	100 "	480	18.89	96	3.780	80	3.150	20	.787	35	1.378	13	.512	15	.591	640	25.20
10	3,780	8 pts.	540	21.25	108	4.252	90	3.543	22	.866	35	1.378	13	.512	15	.591	720	28.35
11	5,700	12 "	600	23.62	120	4.724	100	3.937	24	.945	35	1.378	13	.512	15	.591	800	31.50
12	7,600	16 "	660	25.98	132	5.197	110	4.331	26	1.024	35	1.378	13	.512	15	.591	880	34.65
13	9,850	21 "	720	28.35	144	5.670	120	4.724	28	1.102	35	1.378	13	.512	15	.591	960	37.80
14	12,500	26 "	780	30.71	156	6.132	130	5.118	30	1.181	35	1.378	13	.512	15	.591	1040	40.95



That the best proportions for practical work, all things considered, cannot be determined with exactness, is obvious. I believe, however, that the dimensions adopted by the Chicago College of Pharmacy will be found as nearly right as it is practicable to make them. The percolators are tall and narrow enough to insure very satisfactory results, and not so tall as to be awkward.

Messrs. Whitall, Tatum & Co. are making the percolators for the Chicago College of Pharmacy, and on my recommendation they decided to place this style of percolators on their catalogue, and will have them in stock, made exactly according to these patterns, at an early day. It is to be hoped that other manufacturers of glass percolators will also make them.

The cut represents one of these percolators ready for use. The only additional implements required are a proper stand to firmly support the percolator in position; a wooden plunger made of a circular disk of hard wood fixed on the end of a piece of broom stick; a piece of sheet rubber (⅛ inch thick), or a piece of plate glass, or of wood, to be used as a cover; a receiving bottle, and a few blocks of wood with which to raise or lower the receiving bottle to regulate the rate of flow during the percolation as indicated on page xxxvii. of the Pharmacopœia.

A perforated rubber stopple, 25 millimeters (1 inch) long, slightly tapering, and of the right diameter to fit the stem of the percolator, is better than an ordinary cork for carrying the exit tube to be inserted in the stem. The glass tubing used should be of about 6 millimeters (¼ inch) external, and 3 millimeters (⅛ inch) internal diameter. The exit tube should be 5 centimeters (2 inches) long, thus protruding 25 millimeters (1 inch) beyond the larger or or outer end of the rubber stopple or cork, the other end of this tube being flush with the smaller end of the cork. The rubber tube should be 5 millimeters (⅛ inch) internal diameter. The drop tube (glass) at the further end of the rubber tube may be the same length as the exit tube (5 centimeters). These dimensions of cork and tubing will answer for any size of percolator. The length of the rubber tube, however, must be nearly one-third greater than the height of the percolator in each case respectively.

It will be observed that the total depth of each percolator is uniformly five times its large diameter, and six times its small diameter. These percolators are, therefore, very near cylindrical.

The tops are ground off and thus capable of being tightly covered.

The stem is a regular tincture bottle neck, with the internal diameter greater at the mouth than at the throat, thus admitting insertion of the rubber stopple or cork from without instead of from within. In the old percolators, the stem or neck is wider above than below, and hence the Pharmacopœia directs that the cork be inserted from within, which is very inconvenient.

The stem of the new percolators is long enough to properly accommodate the plug of loose cotton to be inserted over the cork. "Absorbent cotton," or any clean, dry, loose cotton, will answer. The sand used must be very coarse, all the fine dust having been sifted and washed out of it, and must be perfectly dry when used. The layer of sand should not be too thick.

Conical percolators are in my experience not required for any drug. The new percolators proposed are sufficient for all purposes, provided the general official directions are followed with a reasonable amount of intelligence and discretion. It is important that the moistened drug shall be permitted to remain loosely shaken together in the

* Read at the meeting of the American Pharm. Assoc.

percolator sufficiently long to become thoroughly permeated by the moisture before being packed, and that the subsequent packing be done with care and with the requisite degree of relative firmness. The packed mass pushes upward when swelling takes place, and when a conical percolator is used the consequence is that a space is formed all around between the drug and the inner surface of the percolator, necessitating constant watching and mending. This evil is largely avoided in cylindrical percolators.

Each pharmacist who desires to use these new percolators will of course select those sizes only which he deems necessary for the requirements of his own business; but it is scarcely probable that any large pharmaceutical establishment, where fluid extracts and tinctures are constantly being made, can get along with a less extensive assortment than numbers 2 to 13, inclusive. Size No. 1 is intended chiefly for experimental work. It is suggested to those who might consider the entire set too expensive, that one-half the set, consisting of either the even or the uneven numbers, will probably prove more useful than a less equally graded assortment. I believe, however, that the saving in labor and material will more than compensate for the expense of a whole set of these percolators. My understanding is that they will be sold singly as well as in sets, so that any purchaser can get just what he wants. I believe they will be sold at as low prices as the laws of supply and demand may dictate, as no one has any proprietary or exclusive right in either their manufacture or sale.

Simultaneous Fractional Percolation.*

BY C. S. HALLBERG, CHICAGO.

THE extraction of drugs as practised in percolation plays an important part in modern pharmaceutic practice. The favor fluid extracts have met with since their introduction has been the cause of largely increasing the number of drugs desired in this form, until, no doubt, before long the officinal list will embrace nearly all the vegetable remedies. The investigations of various experimenters, such as Squibb, Lloyd, and Diehl, have greatly advanced our knowledge regarding these preparations since the first processes devised by Proctor, or that of Campbell upon which the formulas in the U. S. P., 1870, were constructed.

It has been shown that extraction is accomplished with less volume inversely in proportion to the height of the column of the drug operated upon which discovery was of the greatest importance, since it facilitates extraction, with the least amount of menstruum. It has also been demonstrated that the process of the U. S. P., 1870 was radically faulty, and that the preparations were prone to precipitation, owing to the admixture of an aqueous extract with the alcoholic reserved percolate.

In the process for fluid extracts of the U. S. P., 1880, this has been, to a great extent, avoided by the evaporation of the weak percolate to a soft extract previous to admixture with the reserved percolate, and the subsequent restoration of the original alcoholic strength of the fluid extract by the addition of more of the menstruum.

If I do not misunderstand the theory herein involved, I am of the opinion that less danger of precipitation would be incurred, solution more quickly accomplished, and therefore the fluid extract finished with greater expedition, if the extract obtained by concentrating the weaker percolate were dissolved in the original menstruum, previous to admixture with the reserved percolate. In a properly conducted percolation of such drugs as contain a large percentage of extractive (notably rhubarb, taraxacum, etc.), the menstruum in the reserved percolate holds suspended or in solution as much soluble matter as it will permanently retain. Upon the addition, therefore, of more soluble matter, its dissolving power is taxed to its utmost, the alcoholic strength of the whole in addition is slightly reduced—causes which operate to affect unfavorably the permanency of the solution. Since it has been noticed that, in preparing fluid extracts of some drugs like the above-mentioned, the extract is not dissolved in the reserved percolate until its required volume is reached by the addition of more menstruum, no practicable advantage is gained by the procedure in the official process. On the other hand, the extract readily dissolves in the menstruum with which it was originally extracted, and precipitation is avoided in the admixture, when the alcoholic strength of the liquids is the same.

In fractional or re-percolation, the chance for precipitation of the extract is avoided, so far as immunity may depend upon retaining the original alcoholic strength of the menstruum. Although precipitation does frequently take place when this method has been used, it is caused by the inability of the menstruum to hold the extracted matter permanently in solution. It has been observed that the inert matter of a drug is sometimes extracted along with the active principles, and that a gradual precipitation of the more or less indifferent constituents subsequently results. It has also been found that, while such menstrua are undesirable for physical reasons, they are at the same time more effective in dissolving the active principles and insure a more complete exhaustion than when menstrua, chosen for their capacity of suspending all the extracted matter, are employed.

As an illustration serving to prove the correctness of this observation, we may mention fluid extract of ergot. According to the best authorities, as well as my own experience with the drug, the alcoholic strength of the menstruum for fluid extract of ergot should not exceed 40 per cent; as all the desirable active principles of the drug are soluble therein, wheras the solubility of part of the medicinal constituents is modified in alcohol above this strength. On the other hand, the preparation made with 40 per cent alcohol will, after a short time, show signs of precipitation which will continue for a period of about three months. This precipitate will be found to consist of a modified form of the fixed oil which, having been extracted along with the active matter, is, subsequently (owing probably to resinification caused by the watery menstruum), gradually rendered insoluble. When the officinal menstruum is used, as complete extraction is not obtained as by the 40-per-cent alcohol, but the oil, present perhaps in even greater proportion, is scarcely precipitated at all, owing to the greater alcohol strength of the fluid extract. It will thus be seen that, while the weaker menstruum is the best solvent for the active principles, it does not answer as well for keeping all the suspended matter permanently in solution. When the precipitated matter is of such character that by its rejectment the preparation is improved, then the best solvent should be used for extraction, irrespective of any subsequent precipitation. Unfortunately, however, owing to our limited knowledge of the chemical constituents of the vast majority of drugs, as well as imperfectly established therapeutic facts, this course of procedure, while plainly desirable, is, in practice, inadmissible. In the present instance, the complete exhaustion of the drug is considered of greater importance than transparency in the preparation. Nevertheless, to secure elegance, as well as efficiency, fluid extract of ergot is made with 40 per cent alcohol, and the preparation allowed to remain undisturbed until precipitation has ceased, when the clear liquid is decanted and filtered.

In the adoption of repercolation as an alternate process in the U. S. P., 1880, the committee on revision were, no doubt, aware that this method, in its present form, cannot be applied practically to the extraction of drugs in smaller quantities. This has been the great drawback to its more general employment. Since, however, this method of extraction originated with or, we may say, was almost forced upon operators on a large scale, it will be seen that to make it of equal value in small operations is, therefore, an impossibility, unless modified accordingly. The earliest account of this manner of extraction is noticed in the manufacture of quinine and other alkaloids, where large quantities of drugs are operated upon and where successive macerations are effected, entailing the use of a vast amount of solvent, and where the reduction in bulk of the liquid, so as to be nearly as possible a saturated solution, is a desideratum the achievement of which is regarded from an economic as well as rational standpoint. In applying this process to a small operation in pharmacy, the very feature which renders its employment desirable in operations of greater magnitude still remains, namely, the extended period required for bringing the process to a close. As this item of time is of as much moment in the practice of pharmacy as in any other art or profession, it must be taken in consideration, lest the advantages gained by the employment of the process are more than counterbalanced by the expense. As a volume for weight extraction (without entailing subsequent condensation) is the most desirable process for fluid extracts, its employment should be universally adopted in small as well as large operations, provided that in its application the time expended is not greater than by the more simple processes. With this end in view, a modification of this process is offered, of which the following is an outline.

Divide 100 parts of the drug to be extracted in three or four equal portions. Moisten each portion uniformly with from 20 to 40 per cent of the menstruum, according to the bulk of the drug and its fineness. Pack each portion separately in a cylindrical percolator according to the general directions for preparing fluid extracts in the U. S. P. 1880, and designate each portion respectively Nos. 1, 2, 3, and 4. (When practical, better extraction is accomplished in 4 portions than in 3.) Pour the remaining menstruum gradually upon No. 1 until it begins to drop, when the orifice is closed and left to macerate for 12 to 24 hours.

Percolation is then proceeded with according to the official directions as to rate of speed in dropping, the remaining menstruum being meanwhile poured upon the drug, and subsequently so much more of a mixture of the same alcoholic strength, or, perhaps, somewhat lower, as to displace the amount of menstruum originally used on portion No. 1. The percolate is reserved in portions of from 20 to 40 per cent of the amount of drug in No. 1, according to the proportion required to moisten it with. Thus, for example, of cubeb, ergot, or ginger and drugs of similar density, it has been found that 20 per cent of menstruum is sufficient to moisten with, and the amount of percolate reserved, therefore, from this class would be 20 per cent of one-fourth

* Read at the meeting of the Amer. Pharm. Assoc., at Milwaukee, Aug., 1884.

of the original 100 parts taken, namely 5 parts, volume for weight.

In a class of drugs which are twice as bulky as those just mentioned we find arnica, buchu, senna, and most leaves and flowers. These require 40 per cent of menstruum for moistening, and the percolates reserved from part No. 1 should therefore be of this volume, or twice that of the first mentioned class, namely 10 parts. Intermediate between these two classes we find a smaller number of drugs, mostly barks, such as cascara sagrada and a few rhizomes, *i. e.*, glycyrrhiza and sarsaparilla. This exceptional class is quite limited in numbers, and by far the largest portion of drugs belong to either of the two extremes above noticed, which may be represented as being of a volume 1.50 and 3.00 compared to water at 1.00. Thus, practically, one pound of podophyllum, nux vomica, or ergot will occupy the same space as one and a half pints of water, while one pound of arnica, buchu, or senna fill a volume equivalent to three pints of water. These proportions of volume in crude drugs are, of course, only approximate, and they are influenced more or less by the degree of fineness of the powder and other causes inherent to their physical condition.

Sufficient attention has not been paid to the volume of crude drugs, as with a better understanding of this relation. extraction is greatly simplified. Observation has led to the belief that the soluble constituents of a drug remain, to a great extent, constant in the first portion of menstruum used; that the extract is kept in solution and not influenced by gravity. If proper menstrua are chosen, the extract is kept permanently in solution in the finished preparation; why, then, should gravity cause it to descend during the process or extraction? That the pressure of the superior liquid and the hydrostatic force where the drug occupies a high column are the only agents to be taken in consideration in the process of displacement, is easily believed. Upon this theory, therefore, it is sought to reserve each successive portion of solvent in contact with the whole column of the drug as it is displaced by the remainder of the menstruum.

Consequently each volume of percolate, representing the portion used in moistening, is kept separate until the whole amount of the menstruum originally used is obtained. So far apparently nothing has been gained in circumventing the tedious and time-consuming process of fractional percolation, may be said! *Everything* has been gained—time.

While the extraction is being accomplished in No. 1, maceration is proceeding in the other parts, Nos. 2, 3, and 4. The first percolate from No. 1 is reserved, while the succeeding portions of 5 parts each are successively poured upon No. 2.

Percolation may be at once proceeded with as soon as sufficient parts have been obtained to keep the surface of the drugs in the percolator covered, maceration having been already effected. The first 5 parts of percolate from No. 2 are added to the reserved 5 parts from No. 1 and the successive portions obtained poured upon No. 3, from which the first 5 parts obtained are added to those of Nos. 1 and 2. Percolation is proceeded with in No. 3 in the same manner as in the former numbers, alcohol of the same strength as the menstruum being used for displacement. As will be seen, 85 parts of the original menstruum now remain for the extraction of No. 4, containing 25 parts of the drug. If the process so far has been carefully conducted the complete exhaustion of the drug with such a large portion of menstruum is readily accomplished.

In a record of extractions by this method, kept for one year, it has been found that exhaustion is better effected by stronger alcoholic menstrua; that in drugs whose constituents are most soluble in stronger alcohol (80 to 94 per cent) than in those where diluted alcohol or still weaker menstrua containing glycerin are indicated. It is not claimed that for this reason stronger alcoholic menstrua should be indiscriminately employed, but attention is called to the fact that resinous drugs such as cimicifuga, podophyllum, etc., are more easily exhausted, volume for weight, than drugs containing more extractive soluble in water upon which the medicinal value depends, and for which, therefore, weaker alcoholic menstrua are directed to be used.

By determining the percentage of extractive in the various percolates obtained during the progress of percolation it was thought that possibly an estimate could be made of the rate of extraction in the different parts. While the percentage of extractive matter obtained from a few drugs such as glycyrrhiza, rhubarb, etc., may be a fair basis upon which to judge of the relative strength of the percolate to the crude drug, it is considered doubtful whether or not in the larger portion of drugs the comparative strength of a percolate can be determined by such a purely pharmaceutical method.

In continuing the percolation with alcohol of the same strength as the original menstrua after the required volume of fluid extract had been obtained, the percentages of extractive matter contained in the weak percolates have been found to represent from 5 to 10, and in exceptional cases nearly twenty per cent of the drug. Upon examination, however, these extractives were mostly devoid of medicinal value, and therefore did not represent the amount of crude drug which their percentage relation to the same had indicated. The following extraction will serve as an illustration of this:

100 parts of aconite were extracted by simultaneous fractional percolation. After 100 parts by volume had been obtained and reserved as nearly fluid extract, the extraction was continued with the same menstruum until practically complete exhaustion, which was effected with the use of 100 parts of solvent. The percentage of extractive was determined in each successive 20 portions as follows:

No. 1, percolate, 5 per cent.
No. 2, percolate, 4 " "
No. 3, percolate, 3 " "
No. 4, percolate, 2 " "
No. 5, percolate, 2 " "

As will be seen, this is an average of 3 per cent of extractive, representing nearly 25 per cent of the drug. This large proportion is to some extent accounted for by the fact that 90 per cent alcohol was used for the last extraction, while the original official menstruum was 94 per cent alcohol.

Upon examination these various portions of extractives proved to be medicinally nearly inert. None responded to the physical test for aconite, so prominent in even the poorest of specimens of aconite root.

Solutions of these extracts, in acidulated water, titrated with iodhydrargyrate of potassium, showed the presence of alkaloids, but in such small proportions as to have no pharmaceutical significance.

In conclusion, therefore, it is believed, that in the process here presented, with the use of effective menstrua, extraction may be accomplished with the best of pharmaceutical results, and within a reasonable period of time.

Valuation of Gelatin.

F. PROLLIUS has determined the amount of ash, water, and insoluble matter (residue insoluble in hot water) in various kinds of gelatin. To ascertain the gelatinizing property, one part of the sample was dissolved in ninety parts of water, filtered, and the degree of viscosity determined.

	Ash, per cent.	Water, per cent.	Insoluble, per cent.	Time required for the solution to run out. Seconds.
Astracan, from Schmidt and Dihlman, Stuttgart	0.20	16.0	2.8	507
Ditto, from a collection	0.37	18.0	0.7	485
Ditto, fine iridescent Russian quality, Tubingen collection	1.20	17.0	1.0	500
Ditto, Russian, from Gehe of Dresden	0.80	19.0	3.0	491
Ditto, in laminæ, from Gehe	0.50	19.0	0.4	480
Ditto, in threads, known as Hamburg Threads	0.40	17.0	1.3	477
Hamburg isinglass	1.30	19.0	2.3	470
Another quality	0.13	19.0	5.2	..
Rolled Northern fish bladder	3.90	1.5	10.8	467
Icelandish bladder	0.60	17.0	21.6	463
Indian isinglass	0.78	18.0	8.6	437
Yellow, quality unknown	2.30	17.0	15.6	360

To judge of the purity of isinglass, it is also recommended to subject the sample to microscopic examination.—*Dingl. Pol. J.* and *Journ. Chem. Soc.*

THERMOREGULATOR.

V. H. VELEY has constructed a thermoregulator for keeping up an equal temperature by means of regulating the supply of gas burned under a water-bath or other apparatus. It consists of two globes, *a* and *b*. The larger of these (*a*) is filled with olive oil, the smaller one (*b*) with mercury. The tube *c* is fused into the neck of the larger globe and closes the latter completely. When the olive oil expands by the action of heat, some of it is forced down into the globe containing the mercury, and a portion of the latter is driven up the tube, where it arrests the flow of gas (which enters at *e*, passes down to *d*, and enters the internal tube which carries it to the burner) as soon as it closes the orifice of the inner tube at *d*. Just below the point of the latter, the caliber of the outer tube is reduced by the insertion of a piece of short glass tubing, *d*, which serves to make the upper part of the column of mercury less in diameter and permits a finer adjustment of temperature.

"Antipyrine," a new Antipyretic.*

SINCE I published my first paper on the effects of *kairine*, I have been enabled, through the aid of several friendly chemists, to make more extended pharmacological experiments on several groups of derivatives of quinoline and other bodies nearly related to it.

Among the substances examined by me, there is one which appears to deserve, in a high degree, an exhaustive clinical investigation. This substance is a new synthetical alkaloid, discovered by Dr. Ludwig Knorr, Assistant at the Chemical Laboratory of this University. It has a strong antipyretic effect which sets in gradually and, under proper administration, lasts from 5 to 18 hours, passing off by slow degrees. This circumstance, and the fact that in most cases no disagreeable side-effects were noticed in the patient, induces us to invite clinicists and directors of the larger hospitals to subject this body to a thorough study, in order to ascertain whether it is suitable in actual practice.

Dr. Knorr has given the name *Antipyrine* to the substance; its chemical constitution and relation to other bodies will shortly be communicated through the proper channels.

* Translation of reprint from the *Zeitschr. f. Klin. Med.*, VII., No. 6. By Prof. Dr. Wilhelm Filehne, of Erlangen.

Antipyrine appears in form of a white, crystalline powder. It is very easily soluble in water, and has a very faint taste, which may readily be masked by aromatic water, wine, etc., but which is not decided enough to require a disguise at all. As it is so very soluble, the comparatively large doses in which it must be administered will be no inconvenience.

Aside from experiments on animals, and the first trials made by myself upon different persons, I have on record the observations of about 100 trial-days, with very exact notices of temperature, etc., made in different acute or chronic febrile diseases. These observations were made in the public hospitals of Nuremberg and Moabit (Berlin), the directors of which, Drs. Merkel and Guttmann, willingly complied with my request to give the new drug a trial. Dr. Wiesner, of the Heilige-Geist Hospital at Frankfort-on-the Main, obliged me in the same manner.

According to our experiments, the temperature of the body may be reduced, in most cases, by means of antipyrine, by giving it in doses of 5 to 6 gm. (75 to 90 grains), to be administered in three-hourly intervals—best so that 2 gm. (30 grains) are given first, then again 2 gm. (30 grs.), and lastly 1 or 2 gm. (15–30 grs.). Even very high fever temperatures may be reduced to about 38° C. (100.4° F.). No disagreeable concomitant effects are experienced, except that vomiting occurs in a few cases. The effect is of different duration in different patients. It lasts generally from 7 to 9 hours; sometimes it requires 18 to 20 hours from the time the effects are noticed until the temperature begins to gradually rise again. The commencement of the effect is *never accompanied by febrile chill.* Even the termination, which is generally unaccompanied by sweat, is quite gradual: one hour after the first dose (which should be 2 gm.=30 grains, or even 2.5 gm.=38 grains), the effect of the drug is still feeble, but is well developed after 1½ to 2 hours, and if the doses be administered as above recommended, it reaches its height in 3, 4, or 5 hours.

In children, one-half to two-thirds of the adult dose is sufficient; the same reduced dose will be advisable in the case of consumptives and emaciated persons generally.

The pulse is reduced with the temperature, though not in uniform proportion, particularly towards the termination.

The urine, if previously normal, shows no albumen and no marked change in color.

The preceding hints will be sufficient for those who wish to test the drug further. Though future study may show a different dose or method of administration to be more suitable, I would advise, at least in the first trials, doses of 2 or 1 gm. (30 to 15 grains) in adults, and 1 to 0.5 gm. (15 to 8 grains) in children. It should be weighed out as powder and each powder dissolved, at the time of administration, in water (pure or flavored) or in wine. Splitting up the doses in smaller fractions appears to be less effective and less economical; larger doses at several short intervals seems to be best. The least advisable method is to give it in a single large dose, as this sometimes causes vomiting.

Superintendents of hospitals and clinicists who are willing to submit *antipyrine* to a thorough study, will be supplied with a sufficient quantity by the firm Meister, Lucius & Brüning, in Höchst on the Main (the well-known manufacturers of coal-tar colors). For the present it will not be put on the market. [Antipyrine may be had from the agents of the manufacturers, Messrs. Lutz & Movius, of New York, or any wholesale drug-house.—ED. A. D.]

On Kephir.*

THE inhabitants of the Caucasus prepare kephir—both the beverage and the ferment—from sheeps' or goats' milk, in peculiar leather sacks ("burdinks") by means of a certain granular ferment.

This ferment, also called kephir, is of very ancient date, and nothing is now known of its origin. However this may have been, the grains are in existence and not only is new milk partly peptonized and fermented by them, but at the same time new kephir-granules form in the altered milk and thus present an undying series of generations. The alterations produced in the milk by the ferment, and the manner in which the new kephir is generated is not yet understood, but a chemical analysis of the kephir-grains has shown them to be composed of:

Water	11.21
Fat	3.99
Peptone-like substance soluble in water	10.98
Protein substance, soluble in ammonia	10.32
soluble in potash	30.39
Insoluble residue	33.11
	100.

The insoluble residue, after being soaked in dilute potash solution, is found to consist of the bacterium "Dispora caucasica" originally described by Ed. Kern, mixed with some other, undoubtedly accidental bacterial forms.

Hence it may be concluded that the thirty-three per cent of ferment bodies constitute the only active part of the granules.

Milk which has been fermented in bottles, by means of this kephir, is found to contain but little alcohol after twenty-four hours, and likewise but a small amount of carbonic acid gas. After forty-eight hours these are present in larger quantities, and in still greater ones after seventy-two hours.

If one each of these lots be examined, it will be found that they all contain nearly the same amount of casein. The solution of the casein from one day's kephir deposits only traces of a precipitate, that of two days' kephir yields 0.05%, and that of three days' 0.22%, all of which when ignited scarcely leave any ash. Under the microscope, these residues are seen to consist of ferment-fungi, entirely free from bacteria and other fungous bodies.

It may therefore be concluded that the peculiar ferment-fungus (Saccharomyces mycoderma; Mycoderma cerevisiæ et vini) causes the fermentation of milk by its development, while the bacteria "Dispora caucasica" play no rôle whatever in the process.

This conclusion is rendered still more evident by the fact that fermented kephir (the beverage) can turn fresh milk into kephir in the same manner as the kephir-granules.—Abstract from a paper by Heinrich Struve, of Tiflis, in *Ber. d. Deutsch. Chem. Ges.*, 1884, 1364.

Waterproof Varnish for Paper.

SAYS the *Photo News:* In very many cases waterproof varnishes are useful, and among their uses may be mentioned their application to laboratory labels and their use for the fixing of drawings.

There are many such varnishes, but, according to our own experience, one of the best is a thin solution of gutta-percha in benzol, and such a varnish may be made by dissolving one or two parts of fine gutta-percha foil in a hundred parts of benzol. The heat of a water bath serves to make the gutta percha dissolve tolerably quickly, but if it is necessary to have the preparation at once, the gutta percha may be dissolved in a little chloroform, and this is then mixed with the required bulk of benzol. Paper which has been coated with this varnish can be easily written, drawn, or painted upon, and it must be remembered that the gutta percha varnish does not make the paper transparent or spotted. It is known that gutta-percha slowly oxidizes in the air, and becomes converted into a brittle resin, but this oxidation product is itself a waterproofing agent.

Alcoholic solutions of resins tend to make papers more or less transparent, but the following varnish, prepared with acetone, is not subject to this drawback.

One part of dammar is dissolved in six parts of acetone, the materials being allowed to digest together for some weeks; the clear liquor is now decanted off, and mixed with its own volume of plain collodion.

Another method of making a waterproof varnish for paper consists in digesting 30 parts of white shellac with 300 parts of ether, and then agitating the solution with 15 parts of finely powdered white lead; on filtering the solution, it will be found that the white lead has been very effectual in clarifying the solution.

The above resinous varnish gives more lustre than the gutta percha varnish, but the latter gives more flexibility, a considerable advantage in many cases.

Not only silver prints, but also collotypes, and photo-mechanical impressions, may often be advantageously treated with one of the above varnishes; and it must not be forgotten that anything which protects a silver print against damp serves to diminish the tendency to fading.—*Scient. Amer.*

Remedy for Hay-fever.

DR. MORTIMER GRANVILLE sends to the *British Medical Journal* the following formula for hay-fever and hay-asthma, and remarks concerning its use:

Borax, very finely powdered	gr. xx.
Capsicum, recent, finely powdered and quickly dried*	gr. xv.
Carbonate of ammonia, finely and quickly powdered	gr. x.

Mix the borax and capsicum thoroughly, then add and mix the carbonate of ammonia.

This should be a light and pungent powder, the capsicum rising quickly with the ammonia. It must not cake and should be dry.

The effect of the remedy is at first to aggravate the trouble, but this quickly subsides, and is followed by marked relief. Begin by giving one full dose, which should be strongly snuffed up the nostrils. This will produce intense local disturbance, with sneezing, coughing, and gasping, for which nothing palliative must be done. The excitement will pass off, with a stinging sensation, in about 15 or 20 minutes, and the patient will be better, but without waiting for a return of the malady, and in spite of feeling better, he must, after the lapse of one, or at most two hours, take a second dose, thereby inducing a new paroxysm. This will not last quite so long as the previous one, though it may be as severe. A third generally, occasionally a fourth dose at intervals of three or four hours, will entirely cure the affection.

* Compare NEW REMEDIES, 1883, 315.

* Not Cayenne pepper.

The Keeping Qualities of Solutions of Hypobromites.

SINCE solutions of alkaline hypobromites are often used in analysis, for instance in the estimation of urea, in the titration of oils and fats, etc., etc., it will be useful to know something about their keeping qualities, though it is of course always preferable to employ freshly prepared solutions.

The reaction between caustic solid and bromine at first takes place according to the following scheme:

$$2NaHO + Br_2 = NaBrO + NaBr + H_2O$$

soda + bromine = sodium hypobromite + sodium bromite + water

After some time, however, especially after warming, the following decomposition ensues:

$$3NaBrO + 3NaBr = NaBrO_3 + 5NaBr$$

sodium hypobromite + sodium bromide = sodium bromate + sodium bromide

This is the reason why solutions of hypobromites have hitherto always been considered as unstable. It has, however, been ascertained by A. H. Allen that these solutions may be kept unaltered for a long time, and may even be heated to boiling without material change, if they contain a sufficient quantity of *free* caustic soda.

If the hypobromite solution is to be used for estimating oils and fats in *alkaline* solution, its constancy of strength is of importance. When the determinations are to be made in a solution acidified with hydrochloric acid, the constancy is immaterial, since the whole of the bromine is set free:

a. $3NaBrO + 3NaBr + 6HCl = 6NaCl + 6Br + 3H_2O$

sodium hypobromite + sodium bromide + hydrochloric acid = sodium chloride + bromine + water;

b. $NaBrO_3 + 5NaBr + 6HCl = 6NaCl + 6Br + 3H_2O$ (as before).

sodium bromate + sodium bromide + hydrochloric acid = sodium chloride + bromine + water (as before).

Prof. Allen has made the curious observation, so far remaining unaccounted for, that in all experiments made by him, the quantity of bromine found in the solutions by actual analysis was *higher* than that which was originally added.—*Journ. Chem. Soc.* and *Dingl. Pol. Journ.*

Tin in Canned Foods.

FROM time to time, during the past twelve years, paragraphs have appeared in newspapers and other periodicals tending in effect at least to warn the public against the indiscriminate use of canned foods. And whenever there has been any foundation in fact for such cautions, it has commonly rested on the alleged presence and harmfulness of tin in the food. At the worst, the amount of tin present has been absurdly small, affording an opportunity for one literary representative of medicine to state that before a man could be seriously affected by the tin, even if it occurred in the form of a compound of the metal, he would have to consume at a meal ten pounds of the food containing the largest amount of tin ever detected.

But the greatest proportions of tin thus referred to are, according to my experiments, far beyond those ever likely to be actually present in the food itself in the form of a compound of tin; present, that is to say, on account of the action of the fluids or juices of the food on the tin of the can. Such action and such consequent solution of the tin, and consequent admixture of a possibly assimilable compound of tin with the food, in my opinion never occurs to an extent which in relation to health has any significance whatever. The occurrence of tin, not as a compound, but as the metal itself, is, if possible, still less important.

During the last fifteen years I have frequently examined canned foods, not only with respect to the food itself as food, and to the process of canning, but with regard to the relation of the food to, or the influence, if any, of the metal of the can itself. So lately as within the past two or three months I have examined sixteen varieties of canned food for metals, with the following results:

Name of article examined.	Decimal parts of a grain of tin (or other foreign metal) present in a quarter of a lb.
Salmon	None
Lobsters	None
Oysters	0.004
Sardines	None
Lobster paste	None
Salmon paste	None
Bloater paste	0.002
Potted beef	None
Potted tongue	None
Potted Strasbourg	None
Potted ham	0.002
Luncheon tongue	0.003
Apricots	0.007
Pears	0.003
Tomatoes	0.007
Peaches	0.004

These proportions of metal are, I say, undeserving of serious notice. I question whether they represent more than the amounts of tin we periodically wear off in tin saucepans in preparing food—a month ago I found a trace of tin in water which had been boiled in a tin kettle—or the silver we wear off our forks and spoons. There can be little doubt that we annually pass through our systems a sensible amount of such metals, metallic compounds, and other substances that do not come under the denomination of food; and there is no evidence that they ever did or are ever likely to do harm or occasion us the slightest inconvenience. Harm is far more likely to come to us from noxious gases in the air we breathe than from foreign substances in the food we eat.

But whence come the much less minute amounts of tin—still harmless be it remembered—which have been stated to be occasionally present in canned foods? They come from the minute particles of metal, chipped off from the tin sheets in the operations of cutting, bending, or hammering the parts of the can, or possibly melted off in the operations necessary for the soldering together of the joints of the can. Some may, perhaps, be cut off by the knife in opening a can. At all events I not unfrequently find such minute particles of metal on carefully washing the external surfaces of a mass of meat just removed from a can or on otherwise properly treating canned food with the object of detecting such particles. The published processes for the detection of tin in canned food will not reveal more than the amounts stated in the table, or about those amounts; that is to say, a few thousandths or perhaps two or three hundredths of a grain, if this precaution be adopted. If such care be not observed, the less minute amounts may be found. I did not detect any metallic particles in the twelve samples of canned food just mentioned, but during the past few years I have occasionally found small pieces of metal, perhaps amounting in some cases to a few tenths of a grain per pound. Now and then small shot-like pieces of tin, or possibly solder, may be met with; but no one has ever found, to my knowledge, such a quantity of actual metallic tin, tinned iron, or solder as, from the point of view of health, can have any significance whatever.

The largest amount of tin I ever detected in actual solution in food was in some canned soup, containing a good deal of lemon juice. It amounted to only three-hundredths of a grain in a half pint of the soup as sent to table. Now Christison says, that quantities of 18 to 44 grains of the very soluble chloride of tin were required to kill dogs in from one to four days. Orfila says that several persons on one occasion dressed their dinner with chloride of tin, mistaking it for salt. One person would thus take not less than 20 to 30 grains of this soluble compound of tin. Yet only a little gastric and bowel disturbance followed, and from this all recovered in a few days. Pereira says that the dose of chloride of tin as an antispasmodic and stimulant is from $\frac{1}{16}$ to $\frac{1}{4}$ a grain, repeated two or three times daily. Probably no article of canned food, not even the most acid fruit, if in a condition in which it can be eaten, has ever contained, in an ordinary table portion, as much of a soluble salt of tin as would amount to a harmless or useful medicinal dose.

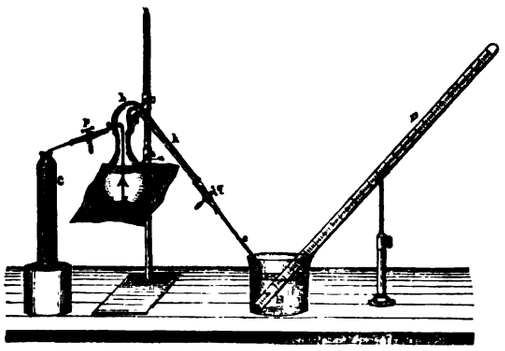
Food as acid as, say, ordinary pickles would dissolve tin. Some manufacturers once proposed using tin stoppers to their bottles of pickles. But the tin was slowly dissolved by the acid of the vinegar. These pickles, however, had a distinctly nasty "metallic" flavor. The idea was abandoned. Probably any article of food containing enough tin to disagree with the system would be too nasty to eat. Purchasers of food may rest assured that the action taken by this firm would be that usually followed. It is not to the interest of manufacturers or other venders to offend the senses of purchasers, still less to do them actual harm, even if no higher motive comes into force.

In the early days of canning, it is just possible that the use of "spirits of salt" in soldering may have resulted in the presence of a little stannous, plumbous, or other chloride in canned food; but such a fault would soon be detected and corrected, and as a matter of fact, resin soldering is to my knowledge more generally employed—indeed for anything I know to the contrary, is exclusively employed—in canning food. Any resin that gained access would be perfectly harmless. It is just possible, also, that formerly the tin itself may have contained lead, but I have not found any lead in the sheet tin used for canning of late years.

In conclusion:—1. I have never been able to satisfy myself that a can of ordinary tinned food contains even a useful medicinal dose of such a true soluble compound of tin as is likely to have any effect on man. 2. As for the metal itself, that is the filings or actual metallic particles or fragments, one ounce is a common dose as a vermifuge; harmless even in that quantity to man, and not always so harmful as could be desired to the parasites for whose disestablishment it is administered. One ounce might be contained in about four hundredweight of canned food. 3. If a possibly harmful quantity of a soluble compound of tin be placed in a portion of canned food, the latter will be so nasty and so unlike any ordinary nasty flavor, so "metallic" in fact, that no sane person will eat it. 4. Respecting the globules of solder (lead and tin) that are occasionally met with in canned food, I believe most persons detect them in the mouth and remove them, as they would shots in game. But if swallowed, they do no harm. Pereira says that metallic lead is probably inert, and that nearly a quarter of a pound has been administered to a dog without any obvious effects. He goes on to say that as it becomes oxidized it occasionally acquires activity, quoting Paulini's statement that colic was produced in a patient who had swallowed a leaden bullet. To allay alarm in the minds

of those who fear they might swallow pellets of solder, I may add that Pereira cites Proust for the assurance that an alloy of tin and lead is less easily oxidized than pure lead. 5. Unsoundness in meat does not appear to promote the corrosion or solution of tin. I have kept salmon in cans till it was putrid, testing it occasionally for tin. No trace of tin was detected. Nevertheless, food should not be allowed to remain for a few days, or even hours, in sauce-pans, metal baking pans, or opened tins or cans, otherwise it may taste metallic. 6. Unsound food, canned or uncanned, may, of course, injure health, and where canned food really has done harm, the harm in all probability has been due to the food and not to the can. 7. What has been termed idiosyncrasy must also be borne in mind. I know a man to whom oatmeal is a poison. Some people cannot eat lobsters either fresh or tinned. Serious results have followed the eating of not only oatmeal or shell fish; but salmon and mutton; hydrate (misreported nitrate) of tin being gratuitously suggested as being contained in the salmon in one case. Possibly there were cases of idiosyncrasy in the eater, possibly the food was unsound, possibly other causes altogether led to the results, but certainly to my mind the tin had nothing to do with the matter.

In my opinion, given after well weighing all evidence hitherto forthcoming, the public have not the faintest cause for alarm respecting the occurrence of tin, lead, or any other metal in canned foods.—PROFESSOR ATTFIELD, F.R.S., in *Phar. Jour. and Trans.*, March 8th, 1884, p. 719.



THE ESTIMATION OF ETHYL NITRITE IN SPIRIT OF NITROUS ETHER.*

THERE are few pharmacopœial preparations the tests for which are so eminently unsatisfactory as those for spirit of nitrous ether. The following are some of the many tests that have been employed:—

I. The chloride of calcium test.—If the spirit be shaken with twice its volume of saturated solution of chloride of calcium, 2 per cent will separate as an ethereal liquid. This test gives no definite indication of the amount of ethyl nitrite.

II. A test described by Mr. Dott, *Pharm. Journ.* [3], xiv., 819.—To the spirit, solution of potassium iodide and a little starch paste are added, and the mixture titrated with volumetric solution of hyposulphite of sodium till colorless. This test gives fallacious results, for it appears that the nitric oxide which is liberated becomes oxidized to nitrous acid again, which liberates more iodine from the solution. A spirit known to contain 2 per cent of ethyl nitrite was estimated by this method. It was not till an amount of hyposulphite solution equivalent to 16 per cent of ethyl nitrite had been added that the blue color of the solution was permanently got rid of.

III. A test described by Mr. Symons *Pharm. Journ.* [3], xiv., p. 819.—The spirit to be tested is mixed with an acid solution of ferrous sulphate, and the depth of color of the mixture compared with a similar one containing a spirit in which there is a known amount of ethyl nitrite. As, however, spirits containing the same amounts of ethyl nitrite produce different shades of color, and as the color quickly fades, this test is not reliable.

IV. Hoffmann's test, modified by Dupré, *Pharm. Journ.* [3], x., p. 93.—The spirit is here saponified with potash, the alcohol evaporated off, the residue re-acidified and titrated with standard solution of permanganate of potassium till its color no longer disappears. This method has been shown by Mr. Dott to give variable resuls.

V. A test proposed by Professor Eykman.—It depends on the production of a scarlet color with a mixture of phenol and sulphuric acid. This reaction is also given by aldehydes, as demonstrated by Mr. W. R. Dunstan in a paper read at a meeting of the School of Pharmacy Students' Association (*Pharm. Journ.* [3], xiv., 837).

VI. Rosenbladt's test (*Zeitsch. Anal. Chem.*, xvii., Heft 3).—The spirit is saponified with alcoholic potash, the alcohol driven off by evaporation, and the residue heated with concentrated solution of ammonium chloride in an atmosphere of carbonic acid. The amount of nitrogen evolved is measured and from that the percentage of ethyl nitrite is calculated. This test, Professor Eykman has shown, gives results far too low, as the nitrogen evolved is only about half the theoretical amount.

VIII. Eykman's test, NEW REMEDIES, May, 1882.—This is the only test at present suggested which has not been condemned as unreliable for estimating the nitrous constituent. It consists in the measurement of the volume of nitric oxide given off when the spirit is heated with an acid solution of ferrous sulphate—

$$2FeSO_4 + H_2SO_4 + 2EtNO_2 = Fe_2SO_4 + 2EtHO + 2NO.$$

The following are notes upon several experiments which were made in order to determine the value of this test.

The apparatus used was the same as that figured in the journal last named, with the exception of the flask with the retort-like neck, for which I substituted bent tubes fitted into an india-rubber cork kept wet with water.

The solutions used were an acid solution of ferrous sulphate, about 1 in 5 or 10, and a soda solution of specific gravity 1.1 to 1.15, which had been freed from oxygen by the addition of a little ferrous sulphate solution.

The following precautions were found necessary in order to obtain reliable results:—If a spirit contain more than a normal amount of nitrous ether, proportionally more ferrous sulphate solution must be employed, as otherwise an excess of gas will be formed and lost. This was the cause of error in experiment D.

The contents of the flask must not be boiled too long, for if the soda solution becomes much heated, dissolved gases are given off, and make the results too high, and if it rises to the boiling-point, the steam ceases to be condensed, suddenly fills the tube, and, together with nitrous oxide, escapes at the bottom.

In reading off the amount of gas, the soda solution remaining in the tube must be replaced by water, and the sides of the tube rinsed with water in order to remove any adherent soda solution, which, being of a higher specific gravity, would decrease the pressure on the gas; then immerse the tube under water till the temperature is normal, and read off the volume of the gas. Professor Eykman directs that the reading should not be taken for an hour, but as the nitric oxide is constantly being oxidized by the oxygen dissolved in the water to the readily soluble higher oxides, the readings would be too low if this were done.

If an india-rubber cork be used for the flask, it must be kept moist, as when the flask is vacuous, air readily enters through the pores, unless it be wet with water. This was the cause of error in experiment A.

Loss of gas by evaporation from the mixture before it be drawn into the flask must be avoided. Sufficient ferrous sulphate solution and a tube not too large will partially prevent this. What loss is unavoidable will be counterbalanced by the gases previously dissolved in the ferrous sulphate solution, which are given off when exposed to the partial vacuum in the flask. These gases amount to 1 C.c. in the quantity usually used.

The percentage of nitrous ether is obtained by the following formula:

$$\frac{\text{Observed volume}}{\text{Sp. gr.} \times \text{amt. of spt. taken}} \times \tfrac{15}{111\,66} \times \times \tfrac{14}{18} \times \tfrac{1}{14^{0}} \text{ or } \frac{V}{S \times A} \times 0.336 = \text{per cent}$$

of $EtNO_2$, with corrections for temperature and pressure of great exactness is required.

The following are results which were obtained.

Spirit		Exp.				
A.		1.	68	C.c.	= 5.4%	$EtNO_2$
"	"	2.	15*	"	= 1.1%	"
"	B.	1.	28.5	"	= 2.3%	"
"	"	2.	28.5	"	= 2.3%	"
"	C.	1.	13.5	"	= 1.1%	"
"	"	2.	13.25	"	= 1.1%	"
"	D.	1.	75	"	= 6.0%	"
"	"	2.	82*	"	= 6.6%	"
"	E.	1.	63.5	"	= 5.1%	"
"	"	2.	63.5	"	= 5.1%	"
"	F.	1.	1.5	"	= 0.1%	"
"	"	2.	1.5	"	= 0.1%	"

A glance at the foregoing table will show that, with the exception of the figures marked with an asterisk, the discrepancies of which have already been explained, Eykman's process gives concordant results in each pair of experiments, no matter whether the solutions be weaker or stronger than the official or commercial varieties of spirit of nitrous ether. The method would seem, therefore, to be trustworthy.

It has been pointed out that this process estimates the free nitrous acid as well as nitrite of ethyl.

Mr. MacEwan estimates the free nitrous acid separately, which may then be substracted from the total nitrites. He adds a drop of methyl orange to the spirit, and then titrates with soda solution till the pink color has disappeared; but the results obtained are not reliable, for spirit of nitrous ether itself was found to prevent the formation of the pink color, and acetic acid has been shown by Mr. Proctor (*Pharm Journ.* [3], xiii., 73) to produce it as well as free nitrous acid. But it would not seem necessary to estimate the free nitrous acid separately, for together with the alcohol in the spirit it will probably have the same therapeutical effect as nitrite of ethyl itself. The freedom from much color, and the gentle effervescence with bicarbonate of potassium will give a fair indication of the absence of great excess of free acid.

Prof. Eykman's test has been objected to because it is too delicate an operation for ordinary use, but with the above precautions, and after a few trials, I believe it will be found to be as simple as and far more reliable than any other test which has been proposed.

The foregoing experiments were commenced at the suggestion of Prof. Attfield, and were carried out in the laboratories of the Pharmaceutical Society.

* Read at a meeting of the School of Pharmacy Students' Association, June 26th, 1884, by T. S. Dymond.

CORRESPONDENCE.

On Prof. Eykman's Assay Process of Spirit of Nitrous Ether.

SOME time ago we were informed by one of our correspondents that he had employed Eykman's process for the estimation of spirit of nitrous ether, and had observed the peculiarity that, while the test gave concordant results when it was performed upon different portions of the same sample, it did not show concordant results when tried upon various *dilutions* of this sample. That is, after having obtained, say thirty-six C.c. of NO gas from a definite volume of the original spirit, he should have obtained eighteen C.c. from the same volume of a mixture containing fifty per cent of the spirit.

We were inclined to believe, at the time, that our correspondent had committed some error in his manipulation or calculation, and, while waiting for a chance to try the experiment ourselves, referred the matter to Prof. Eykman, whose reply is now at hand, and is as follows:

Concerning the process for the estimation of nitrous ether, with which one of the manufacturers did not obtain concordant results, I have not had such experience. On the contrary, good—neutral or nearly neutral—spiritus ætheris nitrosi, if diluted with two or four times its volume of alcohol, always gave the corresponding quantity of NO. Small differences, though, must occur, as in the formula no correction has been admitted for the nitrogen contained in the several liquids, viz., $FeSO_4$ solution, dilute H_2SO_4. This correction amounts to about 0.5–1 cubic centimeters; hence if 5 cub. centim. of any spir. æther. nitros. would give 40 cub. centim. gas, 2.5 cub centim. of the same spir. æther. nitros. would give, *f. i.*, 20.3 cub. centim., instead of 20 cub. centim., and 1.25 cub. centim. of the same spir. æther. nitros. would give about 10.3 to 10.4 cub. centim., instead of 10 cub. centim., but this incorrectness can be neglected when estimating the nitrous ether in spir. nitr. dulcis, as there is always a little less gas obtained than the theoretical quantity, and an *absolutely* correct result cannot be obtained; but if the apparatus is well handled in all details, the results do not vary more than 2 or $\frac{1}{100}$ of the theoretical quantity.

J. F. EYKMAN.

TOKIO, July 10th, 1884.

A further proof of the accuracy and reliability of Prof. Eykman's process is furnished by the experiments of Mr. T. S. Dymond, cited on page 195 of this number.

Extemporaneous Preparation of Citrate of Iron and Quinine (or Strychnine).

I HAVE been for some time extemporizing *Ferri (et Ammonii) et Quininæ Citras* and *Ferri (et Ammonii) et Strychninæ Citras* by preparing standardized solutions of citrate of quinine and citrate of strychnine, so that in every drachm of solution there will be the pharmacopœial quantity of quinine and strychnine in every drachm of each respective salt, and adding afterwards to citrate of Iron and Ammonium. I find the product stable and the process economical. Although not strictly pharmacopœial, is there any objection to offer?

E. D. DRAKE.

TOLEDO, O., August 23d, '84.

In reply we would say that perhaps only a *technical* objection could be raised to the process here described, inasmuch as it is not strictly pharmacopœial. In reality, however, the products thus obtained will no doubt be therapeutically identical with those of the pharmacopœia, provided only that the exact proportions of alkaloids to the iron salt are maintained. The respective compounds of the pharmacopœia (*Ferri et Quininæ Citras*, in form of liquor, and *Ferri et Strychninæ Citras*) cannot be regarded as true double salts, and are at best only mixtures, and their therapeutic action merely depends upon their single constituents.

Swift's Syphilitic Specific.

IN the April number of the AMERICAN DRUGGIST, p. 78, you ask for the composition of "*Swift's Syphilitic Specific.*" I give you the receipt obtained from Dr. Swift, of Georgia, who originated the formula in his country practice. The quantities, as well as the mode of preparing it, are not pharmaceutically correct, and have probably been improved by the persons who manufacture it on a large scale. As given by Dr. Swift, the formula is as follows:

"White Ash, Prickly Ash, White Sumach, Red Sumach, Red Shank, Red Sassafras, one grasp of each (a grasp being as much of the bark, six inches long, as can be grasped in the hand).

"Boil for three days, covering the pot with pine-tops. Boil slowly and fill the pot occasionally with water, until it becomes a dark brown,

"Dose, a wineglassful, three times a day."

I am inclined to think that iodide of potassium has been added.

Very truly yours,

A. M. BOYD, M.D.

TUXPAN, Mexico.

Fastening Labels on Tin.

ONE of our correspondents writes:

"Concerning the query 1,315 in the August number of AMERICAN DRUGGIST, p. 155—to make labels stick to tin—I can recommend a solution of

Balsam of fir..... 1 part.
in Oil of turpentine..2 or 3 parts.

The labels stick so well that they cannot be washed off with water."

Sanitas.

DEAR SIR:—In your June issue,* I observe there is a note relative to the manufacture of "Sanitas," in which you express some doubt as to whether "Sanitas" is still being manufactured.

Permit me to state that the "Sanitas" disinfectants are being manufactured under my patents on a very large scale in this country, and that we own patents also in the United States, in which country we hope shortly either to commence the manufacture on our own account or to arrange for the manufactnre otherwise. Believe me, yours faithfully,

C. W. KINGZETT,
Managing Director.

LONDON, Sept. 9th, 1884.

Dr. Robert Empie Rogers, Emeritus Professor of Chemistry in the Jefferson Medical College, Philadelphia, died in Philadelphia suddenly on the 6th of the present month. He was born in Baltimore, Maryland, in 1814, and was graduated in medicine at the University of Pennsylvania in 1836. In 1844 he was elected Professor of Chemistry in the University of Virginia, and in 1852 succeeded his brother, Dr. J. B. Rogers, as Professor of Chemistry in the University of Pennsylvania, a position which he held until 1877, when he accepted the same chair in the faculty of the Jefferson Medical College. He resigned the duties of this position only a few weeks before his death, on account of his failing health.

* [Query 1,299.]

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,348.—**Must a Graduate of Pharmacy Undergo an Examination before the New York State Board of Pharmacy?** (R.).

Paragraph 2 of the new pharmacy law (see AM. DRUGG., June, p. 111) defines one of the duties of the Board to be:

1. "To examine *all* persons applying for a license under this act, and to grant licenses to such persons as may be entitled to the same."

This compels the Board to actually examine *all* applicants, save and except such as are specially exempted by subsequent sections.

Paragraph 3 enumerates those classes of persons who shall be granted a license, *without examination*, provided they comply with certain requirements specified in subsequent sections.

These classes of persons thus exempted from examination are the following:

1. Those who practise pharmacy, etc., on their own account, at the time of the passage of the act (that is, on or before May 31st, 1884).

2. Those who shall have served five years or more, at the time of passage of the act, in the business of dispensing, etc., provided he is twenty-one years of age (the word "at the time of the passage of this act," are not repeated here, and quite properly, since a period of ninety days after the organization of the Board is allowed within which application for a license under this section may be made, the applicant need not have been of age at the time of the passage of the act, but may become of age any time during the ninety days. If he is not of age at the expiration of the ninetieth day, he cannot obtain a license without examination).

3. Those who are licensed by other Boards of Pharmacy legally created under the laws of the State of New York (that is, those licensed by the old and the new Board of Pharmacy of the City and County of New York and the Kings County Board of Pharmacy).

4. Those who hold a diploma of graduate of any incorporated college of pharmacy *of this State.* (This includes, therefore, at present, only the graduates of the College of Pharmacy of the City of New York and of the Albany College of Pharmacy. Graduates of colleges of pharmacy situated in other States will therefore have to be examined.)

No. 1,349.—**Asphalt-Varnish** (R. M. B.).

A good asphalt varnish for coating stove-pipes, etc., may be made by heating together:

Asphalt.....	100 parts
Copaiba.....	5 "
Linseed oil.....	5 "

and digesting the resulting mass with benzol (coal-tar benzol) 150 parts.

The only difficulty with this is, that during its preparation and during its application (until perfectly dry) no light or fire must be brought near it, otherwise it will ignite.

If asphalt-pitch (the final hard residue of the paraffin factories) is used,

instead of asphalt, oil of turpentine may be used to dissolve it.

Another formula is:

Asphalt	200 parts
Amber Rosin	100 "
Boiled Linseed Oil	50 "
Oil of Turpentine	1000 " or q. s.

Melt the first three ingredients with a moderate heat, then remove them from the fire and mix them with the oil of turpentine previously heated, until the proper thickness has been obtained.

Another:

Asphalt	100
Pitch	20
Benzol	300

Melt the two first, and dissolve in the benzol.

Once more we would caution against using the varnish in the neighborhood of any fire, as several serious accidents have happened in this way.

No. 1,350.—**Axle Grease containing Castor Oil** (J. D. S.).

The best axle grease *containing* castor oil, in our opinion, is castor oil itself.

If you have a stock of this on your premises, you need not use the perfectly clear oil, as it first flows from the can, but may use the drainings or last portions, which are often a little cloudy and less valuable for other purposes.

No. 1,351.—**List of Incompatibilities** (H. G. H.).

It would be quite impracticable to attempt drawing up a "complete" list of incompatibilities, even if only those substances which are incompatible towards a single compound were to be enumerated. Those who compound medicines need at least that much knowledge of chemistry as would enable them to apply certain general laws in special cases. For instance, that substances containing tannic acids are incompatible with iron or with alkaloids. In the modern text-books on Practical Pharmacy (Parrish's, Proctor's, etc.) you will find more or less space devoted to this subject. The dispensatories also frequently quote, under the different headings, such incompatibles as would render the action of the drug nugatory or pernicious. The pharmaceutical journals also frequently discuss special cases of this kind which are brought to their notice. In the pages of this journal, you will find a variety of cases discussed.

No. 1,352.—**Methylic Alcohol** (E. D. D.).

This correspondent asks: "What commercial process is in vogue for the purification of methyl alcohol, prepared from crude wood vinegar? Is the process by conversion into methylic oxalate $(CH_3)_2C_2O_4$, and the subsequent decomposition of this crystalline compound by distillation with water, an econmical one in the preparation of pure methyl alcohol?"

From all we can learn, the process mentioned by our correspondent would not be likely to prove economical on a large scale. The usual method, we are informed, is to employ chloride of calcium.

Wood spirit is contained in the aqueous liquid passing over during the dry distillation of wood. It is accompanied by acetic acid, acetone, and pyrogenous products. On saturating this aqueous liquid with lime, the acetic acid is neutralized and some of the empyreumatic oils are separated. If the liquid is now distilled, the crude wood-spirit of the market is obtained, which may be freed from most adhering impurities by repeated distillation over caustic lime. The final colorless distillate still contains, however, various foreign substances, which are removed by treating the mixture with chloride of calcium. This salt has the peculiar property of forming a crystalline compound with the methyl alcohol, which is separated, pressed, and then heated to 100° C. (212° F.), which temperature is insufficient to decompose it, but is high enough to remove nearly all the accompanying impurities. The compound of chloride of calcium and methyl alcohol, now remaining in the retort, is then distilled with water (or steam), when the methyl alcohol accompanied by water passes over. The water is finally removed by one or more rectifications over lime.

The oxalic ether process is only used, so far as we are aware, when it is desired to produce a perfectly pure product, such as is hardly ever required in large quantities. To prepare it, methyl alcohol, as obtained by the chloride of calcium process, is heated with oxalic acid (dried at 100° C.), or distilled with oxalic and sulphuric acids, or with sulphuric acid and acid oxalate of potassium.

In the first process, the oxalate of methyl crystallizes out; in the other two processes it passes over and condenses. By distilling it afterwards with water, it splits up into methyl alcohol and oxalic acid, which may be used over again. Wöhler was the first who proposed this process, and recommended it to be applied to the crude spirit itself. From what we can learn, however, it is not generally used.

Should we be in error in this matter, we would be glad to be corrected by any of our readers.

As to which process is really more economical, this is a question which can only be decided by carrying both out systematically on a somewhat large scale, and noting expense and quantity of product.

No. 1,353.—**Jackson's Cough Syrup.**

The following is the formula recommended by Prof. J. U. Lloyd to be followed as a standard for the above preparation, which also goes by the name of *Compound Syrup of Morphine:*

Fl. ext. ipecac	℥ fl. ʒ
" " senega	3 fl. ℥
" " rhubarb	4 fl. ʒ
Sulphate of morphine	8 gr.
Oil of sassafras	32 drops.
Syrup, enough to make	32 fl. ℥

No. 1,354.—**Preparation of Maltose** (D. W. B.).

Dubrunfant has given detailed information as to the best methods for preparing maltose—either crystallized or in form of syrup—on the large scale. The different steps of the operation may be briefly described thus:

1. *Water.* The water to be used must be freed from suspended impurities, and must be free from organic matters (which latter would eventually produce parasitic ferments). It must also be deprived of any dissolved carbonate or sulphate of calcium, since the former salt, by its alkaline reaction, facilitates butyric fermentation, while the latter becomes troublesome during the concentration. If possible, distilled water should be employed.

2. *Crude Material.* For crystallized sugar: starch in as pure a condition as possible. For syrup: flour, potatoes, and coarsely-ground grain.

3. *Malt.* In making crystallized maltose, malt itself is not used, because the crystallization is interfered with by various substances (not well known as yet) which accompany the diastase. In this case a watery extract of malt is prepared. The malt, previously ground to a coarse powder and dried at a low temperature, is soaked in four times its weight of water at 30° C. (86° F.), after a few hours the liquid is removed by expression, and then filtered. The liquid may also be obtained by successively percolating through a series of displacers until the percolate has the proper density. In place of malted barley, any other kind of grain may be used, provided it develops saccharific properties on sprouting or when it is malted.

4. *Solution of the Starch.* The starch is first converted into paste by mixing it with twice its weight of water, then mixed with five per cent of malt (or malt extract), and strongly agitated. At the same time, a quantity of water amounting to ten times that of the starch is heated to 90° C. (194° F.), and this liquid poured, together with the starch mixture, in two converging streams through a specially arranged sieve, where the mere contact of the liquid is sufficient to render the starch soluble. Complete solution is effected by blowing in steam. On entering the boiler, the mixture has a temperature of 75° C. At 90° C. the mass is as thin as water, and the operation is finished.

5. *Saccharification.* The liquid is cooled off in any desired manner to 40° C., and enough extract of malt added to correspond to ten or fifteen per cent of the weight of the starch employed. Saccharification begins at once, and during it the temperature must be kept between 40° and 50° C. The progress of saccharification is controlled by iodine solution (which ceases to produce a blue color when all the starch is converted, which is the case in two or three hours). If syrup is to be made, the process may now be interrupted; but if crystalline maltose is wanted, the operation must be kept up during twelve to fifteen hours. During the process not the least trace of acid must make its appearance, which is usually caused by the use of impure water or by exceeding the temperature of 50° C.

6. *Filtration and Concentration.* If pure starch has been used, the liquid may be separated from the undissolved residue by single filtration. In other cases, the residues must be pressed. After the liquid had been clarified (best by passing it through an Oldham-Farquhar filter), it has a spec. gr. of 4° B., and is then concentrated to 20° B., when the now yellowish juice is allowed to cool and become clear by standing. It is then filtered cold, so as to prevent the resolution of certain nitrogenous substances. Finally the liquid is passed through freshly ignited and carefully washed charcoal, when it flows off bright and brilliant and colorless. It is next concentrated to 40° B. in copper or tinned-copper apparatus (in contact with iron the liquid turns deep black).

Solid maltose (containing 80% pure sugar) has this advantage before glucose, that it is not hygroscopic, and possesses a very agreeable, sweet taste and an aromatic odor.

No. 1,355.—**Syrup of Blackberries.** (——).

We presume that you mean syrup of blackberry *fruit*, and not the syrupus rubi (or syrup of blackberry *root*) of the U. S. Ph. Blackberry syrup may be prepared exactly like raspberry syrup, for which you will find a good working formula in the pharmacopœia (p. 327).

No. 1,356.—**Solution of Tartrate of Iron and Potassium** (Dr. C. N. A.).

This correspondent wants to know how to prepare a solution of tartrate of iron and potassium, which will remain stable for more than a few days. He says that he has tried glycerin with a solution made with soft water, but it would not remain more than three or four days.

We would advise our correspondent not to expect to find a satisfactory method of keeping the above-named salt in solution. As it occurs in commerce, it usually leaves a slight insoluble precipitate when dissolved in water, which can, however, generally be redissolved by the cautious addition of ammonia. An aqueous solution will, of course, not keep at all, this being a common property of solutions containing tartrates. Alcohol, if added in sufficient quantity to prevent this decomposition, will cause a part of the salt to precipitate;

and, if glycerin is to be used as a preservative, it must be used with as little water as possible, or better without any water at all, but it takes some time to produce a solution. If enough water of ammonia be added to the hot mixture of glycerin and the powdered salt, the latter will eventually disolve, and most of the excess of ammonia may be driven off again by careful heating, but the result is not always satisfactory. Besides it is not unlikely that the product would be irritating to the stomach.

Taking everything in consideration, and remembering that tartrate of iron and potassium is one of the very best ferruginous preparations, according to the best authorities, we think it would be always preferable to administer it in powder or in freshly-prepared solution.

Sanitas Preparations (Supplement to query 1,299).

We are informed by Messrs. Lilly, Rogers & Co., of Baltimore, that they keep in stock a full line of the preparations made by the Sanitas Co., London. See also correspondence on page 197.

No. 1,357.—**Hagan's Magnolia Balm.** ("Subscriber").

According to Prof. Chandler's analysis, this contains nothing but water and 23.7 per cent of oxide of zinc.

No. 1,358. — **Edge-Blacking for Shoes** ("Subscriber").

For this purpose a simple watery solution of common sulphate of iron in about 12 parts of water is usually employed. There is sufficient uncombined tannin in new leather to form an ink with the iron solution at the time of its application.

No. 1,359.—**The Proper Color of Male Fern Root** (U. S.).

In this country it is not usual to find male fern root kept in drug stores, and we have no doubt that the particular lot which our corresponndent found among the stock of his newly purchased store, and which he suspects to be inert, is suffering from old age. *Whole* male fern root cannot be kept in good condition at all, for any considerable time.

If it is to be kept, it must be, immediately after being collected, deprived of the fleshy scales and cut into thin slices, which should have a fresh greenish-yellow color, and any portions that have a damaged or discolored appearance should be thrown away. It may then be dried and kept in securely stoppered vessels, or better, it may be powdered, and the powder kept in hermetically closed receptacles, in a dark place.

No. 1,360.—**Scent for Hair Oils** (E.).

Oil of Bergamot alone makes an agreeable scent for hair-oil. A great variety of other simple or compound scents may be produced by mixing. A few simple and inexpensive forms are the following, which may be varied according to the taste of the user. (The oil of cloves should be added with caution, as an excess is very prominently perceptible.)

Parts of	1	2	3	4
Oil of Bergamot	4	4	2	6
Oil of Lemon	2	2	4	2
Oil of Lavender	1	1	—	—
Oil of Rosemary	—	1	—	—
Oil of Cloves	1–4	2	1	—

Our correspondent says that he is in the habit of coloring *petrolatum* by digesting it with alkanet at a gentle heat, and incorporating essential oils when cold. This forms an excellent pomatum. For many years past, vaseline has been used, by barbers especially, in place of hair-oil.

No. 1,361.—**Effervescing Salicylic Mixture.** (F. M.).

It is quite possible to make a dry preparation, resembling effervescing citrate of magnesium, but in this case the salicylic acid must be added last, and the whole must be reduced to a fine, uniform powder. It may be finished by moistening with alcohol, as in the officinal process for granular citrate of magnesia, although the salicylic acid will be thereby dissolved, and a slight effervescence be set up. Yet enough bicarbonate of sodium will remain undecomposed to produce effervescence when added to water.

As the formula, however, is rather complicated, and our experience is in favor of one much more simple, we will only give the latter.

Mix intimately, in a mortar:

Salicylic Acid.....500 parts
Bicarbonate of Sodium...306 "

and keep the powder in well-stopped bottles. The above proportions, when combined, produce 612 parts of salicylate of sodium. A dose of 10 grains of salicylate of sodium would, therefore, be represented by about 13 grains of the above mixture. It is best administered with the Elixir of Curaçoa of the New York and Brooklyn Formulary, thus:

Salicylic Mixture (as above). 10 grs.
Elixir of Curaçoa..... 1 fl. oz.
Carbonic Acid Water.about 2 fl. oz.

Place the salicylic mixture in a tumbler, pour upon it the elixir, and mix rapidly with a glass rod or spoon, then add the carbonic water and drink at once. In this form, the salicylate does not usually cause nausea.

No. 1,362.—**Clear Solution of Pepsin** (F. M.).

Our correspondent says that he has great trouble in obtaining a clear solution when making Liquor Pepsini. He says that, after he adds the hydrochloric acid and filters it, the solution is very cloudy.

In reply we would say that it probably depends *partly* on the quality of the pepsin he uses. The less mucus the pepsin contains, the clearer will be its aqueous solution. The market affords several saccharated pepsins which will produce a satisfactory product.

When the pharmacopœia committee deliberated on, and adopted the formula finally made officinal, the excellence and usefulness of the *unsaccharated* or undiluted pepsins had not yet become generally recognized; otherwise, the Committee might possibly have adopted another formula. As we have found the officinal preparation rather weak, we have for some time past used a different mode of preparing it, namely:

Pepsin (in scales)...	24 parts.
Hydrochloric acid..	24 "
Glycerin.....	800 "
Water enough to make	2,000 "

Dissolve the pepsin (which should be of high digestive power) in 500 parts of water; then add the glycerin, hydrochloric acid, and lastly enough water to make the product weigh 2,000 parts. Then mix it with 60 parts of starch, by shaking, and filter. The starch will help to envelop and retain a large portion of the suspended matters which render the liquid cloudy. It will happen but rarely that the first filtrate will be perfectly clear or, at least, remain so for any length of time. The suspended matters are in so fine a condition that some of them will pass through the filter. Gradually, however, they will agglutinate and form larger granules or flakes, and, if the liquid be again filtered after some time, particularly after it has become clear by depositing, it will usually come through quite clear. If the liquid pepsin is to be set aside before fully deprived of all suspended matters, it is very apt to become mouldy, which, indeed, will happen also to the perfectly clear solution if long exposed to the air. To prevent this, a layer of pure olive-oil (salad-oil) may be poured on the liquid, and when the clear contents of the stock-bottle are to be removed so as neither to disturb the sediment nor the layer of oil, a siphon-tube may be employed.

No. 1,363.—**Tincture of Quillaia** (M.).

A tincture of quillaia (or soap-bark) suitable for use at the soda fountain is made by percolating or macerating 1 part of powdered quillaia with enough alcohol (or a mixture of 2 volumes of alcohol and 1 volume of water) to make 5 parts of tincture.

No. 1,364.—**Tooth Powder** (N.).

Here are a few formulæ to select from:

1. *Carbon Tooth Powder.*

	Parts.
Charcoal, in very fine powder	2,000
Cinchona bark, " "	500
Oil of Bergamot	15
Oil of Lemon	30

Mix intimately.

2. *Chalk Tooth Powder.*

	Parts.
Precip. Carbonate of Calcium	2,000
Starch	15
Orris Root, powd	250
Oil of cinnamon	30

Another.

	Parts.
Precip. Carbonate of Calcium	2,000
Camphor	500
Orris Root, powd	1,000
Cinnamon	250

Another.

	Parts.
Precip. Carbonate of Calcium	2,000
Orris Root, powd	1,000
Oil of Rose	5 to 15
Oil of Sandal-wood	10

Another.

	Parts.
Precip. Carbonate of Calcium	2,000
Cuttle Fish Bone, powd	1,000
Orris Root, powd	1,000
Oil of Bergamot	20
" " Lemon	40
" " Neroli	10
" " Portugal	20

Formulæ asked for.

(Consult our remarks on p. 98, May number, top of first column.)

1. *Oriental Tooth Paste* (Jewsbury and Brown, Manchester).
2. *Kennedy's Salt Rheum Ointment.*
3. *Starkey and Palm's Compound Oxygen gas.*
4. *William's Indian Pile Ointment.*
5. *Eureka Catarrh Remedy Specific.*
6. *Dr. Foul's Pile and Humour Cure.*

BIBLIOGRAPHY.

THE NATIONAL DISPENSATORY. Containing the Natural History, Chemistry, Pharmacy, Actions and Uses of Medicines, Including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with numerous references to the French Codex. By ALFRED STILLÉ, M.D., LL.D., etc., and JOHN M. MAISCH, Phar.D., etc. Third Edition. Thoroughly Revised, with Numerous Additions. With 311 Illustrations. Philadelphia: Henry C. Lea's Son & Co., 1884, pp. 1,755, roy. 8vo.

WE can hardly attempt more than a notice of this very elaborate work. It has been but a short time in existence, but has already undergone two revisions, and in its latest form is wonderfully comprehensive. In this latest edition, the publisher has adopted the incised alphabetical index on the margins of the leaves, so as to very considerably facilitate reference to its contents.

WHARTON AND STILLÉ'S MEDICAL JURISPRUDENCE. Fourth Edition. Edited by ROBERT AMORY A.B., M.D., etc., and EDWARD S. WOOD, A.M., M.D., etc. Vol. II. Philadelphia: Kay & Brother, 1884, pp. 669, roy. 8vo.

THE considerable additions which have been made of late years to the literature of poisons have rendered necessary the division of the work of which this forms a part, and the devotion of an entire volume to the subject. The editors are well known as authorities on therapeutics and medical chemistry, and they have evidently expended much time and labor upon the revision.

THE AMERICAN HOMŒOPATHIC DISPENSATORY. By THEO. D. WILLIAMS, M.D., Member Illinois State Pharmaceutical Association, etc. Chicago: Gross & Delbridge. 1884. Pp. 698, xv., 8vo.

THIS is the most comprehensive of the several homœopathic pharmacopœias which have lately been issued in the United States. Its author recognizes the fact that it lacks the authority which it would derive from its acceptance by some such body as the American Institute of Homœopathy, but offers it as a foundation for such a work. So far as we perceive, it is entitled to such consideration. It contains no references to the botanical or chemical histology of drugs, nor to their therapeutic or toxic effects, being limited strictly to the preparations. There is a section on General Pharmacy, followed by one on General Formulas. The major portion of the work relates to Special Pharmacy, and the various subjects follow in alphabetical order. The directions are very explicit, and any pharmacist should be able, with their aid, to undertake the manipulation of homœopathic preparations.

AMERICAN MEDICINAL PLANTS: An Illustrated and Descriptive Guide to the American Plants Used as Homœopathic Remedies: Their History, Preparation, Chemistry, and Physiological Effects. By CHARLES F. MILLSPAUGH, M.D. New York and Philadelphia: Boericke & Tafel. Sm. folio.

THIS work was announced by us in our last volume. The first fasciculus now received contains five numbers, and embraces the illustrations and text descriptive of Apocynum androsæmifolium, Ampelopsis, Asclepias cornuti, Berberis, Castanea vesca, Catalpa, Chelidonium, Chelone glabra, Chimaphilla, Dulcamara, Epigæa, Euphorbia corollata, Gaultheria, Hamamelis, Helianthus, Hydrastis, nula, Iris versicolor, Linaria, Lobelia syphilitica, Melilotus, Millefolium, Nymphæa, Pothos, Robinia, Sanguinaria, Sinapis nigra, Tabacum, Trifolium, and Trifolium repens.

The figures are drawn from growing plants by the author, and are intended to be as exact in dimensions and color as is possible. The whole series is to include one hundred and eighty plates, and will doubtless be a valuable addition to American medical botany. Although intended primarily for homœopathic physicians as an aid to the preparation of fresh-plant tinctures, the work should be equally valuable for other physicians and pharmacists in country neighborhoods.

THE EXTRA PHARMACOPŒIA of Unofficinal Drugs and Chemical and Pharmaceutical Preparations. By WILLIAM MARTINDALE, F.C.S., etc., and W. WYNN WESTCOTT, M.B., etc. Third Edition. London: H. K. Lewis, 1884.

THIS convenient little pocket-book has gone through two editions rapidly and has been revised a second time. It contains references to so many drugs and preparations in daily use, which are in vogue since the revision of the British Pharmacopœia, that its possession seems to be almost a necessity among British physicians and students. We have already spoken highly of the work, and this last revision increases its claims upon our favor.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION at the Thirty-first Annual Meeting, etc. Philadelphia: 1884.

THOUGH less voluminous than some of its predecessors, this volume is hardly less valuable as a year-book of pharmaceutical progress. The frontispiece is an excellent portrait of the late William Neergard, of New York City.

THE ALPINE WINTER CURE, with Notes on Davoz Platz, Wiesen, St. Moritz, and Maloja. By A. T. TUCKER WISE, M.D., etc. London: Baillière, Tindall & Cox, pp. 100, 8vo.

THIS is a convenient and desirable hand-book for those who desire a European winter climate at high altitudes.

AUSCULTATION, PERCUSSION, AND URINALYSIS: An Epitome of the Physical Signs of the Heart, Lung, Liver, Kidney, and Spleen in Health and Disease. By C. HENRI LEONARD, A.M., M.D., etc. Illustrated. Detroit: Illustrated Medical Journal Co.

ITEMS.

Cleveland School of Pharmacy.—This institution has existed in a quiet way for two years, averaging thirty scholars each session. This year, on account of the stringent Ohio Pharmacy Law, which requires all those who intend to become drug clerks to pass a thorough examination, it has been determined by the Cleveland Pharmaceutical Association to elaborate the course of study. Chas. W. Kolbe, M.D., Ph.D., will deliver the lectures on Chemistry, and Joseph Feil, Ph.G., those on pharmacy and materia medica. The school is conducted by the Committee on Pharmacy School of the C. P. A., of which Mr. E. A. Schellentrager is Chairman, and the sessions are held in the Society's rooms in the City Hall.

The course is intended to meet the requirements of the Qualified Assistants' Examination of the Ohio Board of Pharmacy.

Ferrated Syrup of Peaches.—This is a delightful preparation, and may be made as follows: Take of good ripe peaches, free from stone, 1,000 parts (by weight); iron filings, free from copper, 50 parts, and sugar, 300 parts. Put the peaches in an iron vessel and mash them up, mixing sufficient water with them to make a paste; add the iron filings, and let the whole macerate for ten days, stirring frequently; then filter through a thick cloth to obtain the extractive matter. A little water is poured on the residue and filtered through paper. The filtrates are mixed, and to the fluid, which is of a brownish-green hue, is added the sugar. The mixture is now simmered at a moderate heat (not over 60° C.) to the consistence of a syrup. A clear greenish-brown fluid is the result, having the taste and smell of peaches, and giving the usual reactions of the iron preparations.—*Gazette de Medica di Torino.*

The cod-liver oil business is flourishing at Marseilles, and competition runs high. A repudiated advertisement of one of the manufacturers reads as follows: "The cod being one of the small fishes of the sea, is constantly tracked and pursued by its enemies, the whales and sharks, etc., therefore it lives in a constant state of fear, and it is a well-established fact that fear engenders in all living creatures jaundice and diseases of the liver. Consequently all codfish taken in the open sea have diseased livers. But all my fish are caught in a safe harbor, where marine monsters cannot enter. They live there in peace and comfort. Their livers are perfectly healthy, and that is the reason why my cod-liver oil is the best."—*Nat. Drug.*

Testing Drain Pipes.—An engineer tests all lengths of iron pipe to be put in for soil-pipes under his direction in a very simple and easily manipulated manner. The lengths as they come from the dealer are coated on the inside with a very thin coat of linseed or kerosene oil. This is done by drawing oiled waste through the pipes. The pipe is then set on end, and if, after a few hours, there is no presence of oil on the outside of the pipe, it is accepted. About seventy per cent of the best pipe stands this test.—*Nat. Drug.*

Grease Extractor.—German journals allude to the efficacy of "benzol magnesia" as a cleanser and grease eradicator. It is prepared by saturating calcined magnesia with benzol. A little of this powder rubbed on a greasy stain, on paper, or any fabric, will remove it, but old stains may require a repetition of the process. The mixture is said to be excellent for cleaning windows.

Professor Mallet, formerly of the University of Virginia, has been appointed to succeed Prof. Rogers in the chair of Chemistry of Jefferson Medical College.

PHARMACEUTICAL CALENDAR.—OCTOBER.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Wed. 1st.	Rhode Island State Pharm. Assoc.—Quart.	Mon. 13th.	Albany Co. (N. Y.) Pharm. Assoc.
Friday 3d.	American Chemical Soc. Meets at New York.		New York City Board of Pharm., 209 E. 23d street, at 3 P.M.—Examination.
Mon. 6th.	Pittsburg (Pa.) Coll. Pharm.—Quarterly.	Tues. 14th.	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.
Tues. 7th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.	Wed. 15th.	National Wholesale Drug Assoc.—Annual, at St. Louis, Mo.
	Davenport (Iowa) Pharm. Assoc.—Quarterly.	Thurs. 16th.	New York Coll. of Pharm.—Quarterly Meeting and Revision of By-Laws.
	Chicago Coll. Pharm.—Semi-Annual.	Friday 17th.	Rhode Island Chem. and Drug Clerks' Assoc. Meet.
	St. Joseph (Mo.) Pharm. Assoc.	Tues. 21st.	St. Joseph (Mo.) Pharm. Assoc.
	Rhode Island Chem. and Drug Clerks' Assoc.	Thurs. 30th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.
Thurs. 9th.	Newark (N. J.) Pharm. Assoc.		
	California Pharm. Soc. & Coll. Pharm.—Quar.		
	New York Germ. Apoth. Soc.		
	Lancaster Co. (Pa.) Pharm. Assoc.		

American Druggist

Vol. XIII. No. 11. NEW YORK, NOVEMBER, 1884. Whole No. 125.

[ORIGINAL COMMUNICATION.]

HOW TO MAKE DRUGGISTS' SHOW-WINDOWS ATTRACTIVE.

BY S. J. BENDINER.

THIS is a question often asked.

Superficially, it appears to be quite an innocent one, yet a correct answer necessarily requires a more specific statement from its interrogator, and while I entertain no doubt whatever as to the meaning of a *pharmacist's* show window, I cannot assume this *à priori*, hence I am obliged to consider and answer this query from several standpoints, not one only. At the very beginning, however, I am confronted by another, the *real* question, to which the above query serves merely as a cover, and this vexed question has been, moreover, a standard conundrum for the several years past; it has furnished welcome material for the pharmaceutical and medical press, and has been and still is made use of, as a grateful theme, by after-dinner speakers, college professors, *et al.*, and wherever seen in print or heard, it is invariably asked under the ominous title: "Is pharmacy a profession or a trade?"

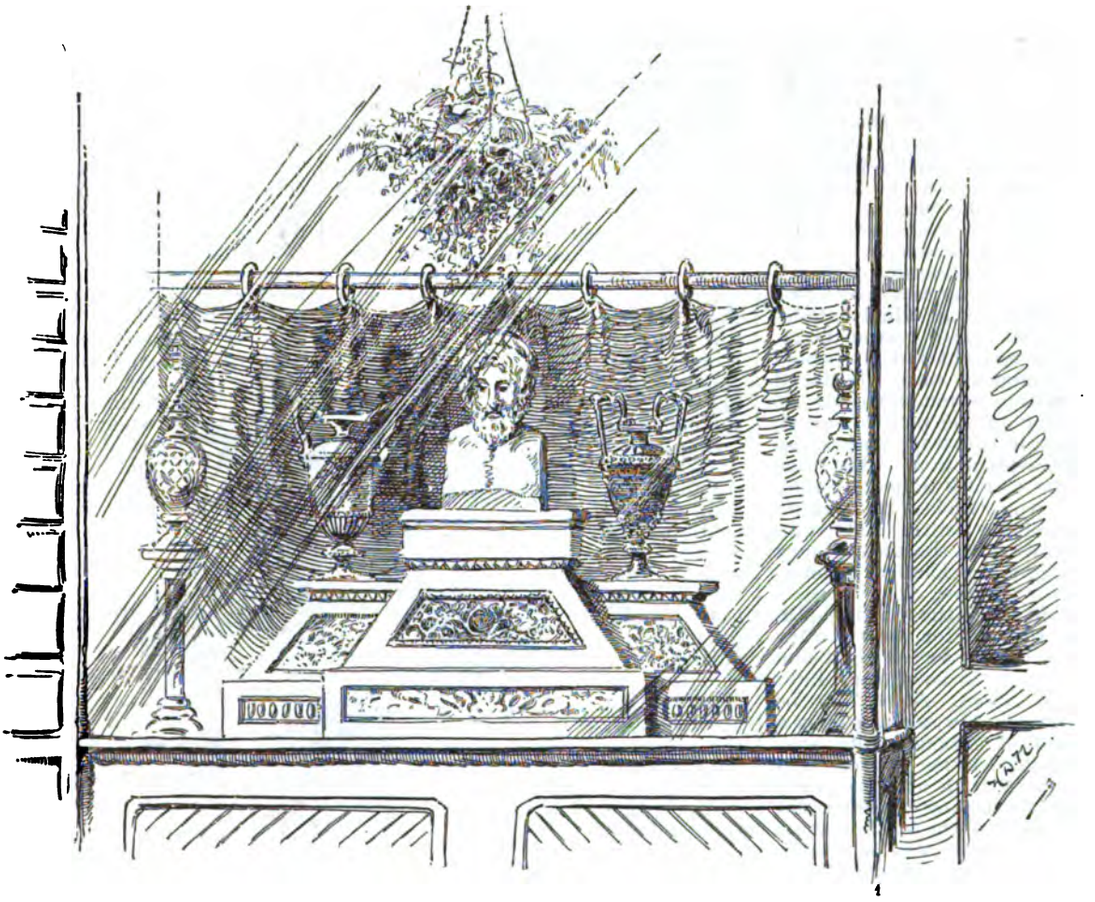
Now, in this latter query lies my answer to this inquiry: "How to make druggists' show windows attractive," because if pharmacy is a profession, why have *show* windows? Is it compatible with a professional man to make an *attractive* show, or *any* show at all?

While, aside from the conventional colored show-bottles in apothecaries' windows, a display of appropriate insignia of our profession (mortar and pestle, for instance) could certainly not be objected to by even the most exacting hairsplitter and authority upon professional etiquette, it is, on the other hand, only too evident that, in the windows of most of the 30,000 drug stores in the United States, this limit is trespassed; their windows, sanctioned by long usage, are utilized for the purpose of exhibiting merchandise in exactly the same manner as trades-people display their wares. Some druggists go even so far as to exhibit oil paintings with cards attached, "for sale," and prices marked thereon, others place a collection of photographs of actresses, etc., with scanty drapings, in their show windows, or engravings of specimen noses, mouths and eyes by some "physiognomical artist."

As "the dress maketh the man," so furnishes, in a great majority of cases, the display in the apothecary's window a tolerably reliable index to the professional standing of the man within, and for this reason, in the absence of any specification as to what kind or style of drug store is referred to, I proceed to reply to the query from the standpoints of the three distinct and prevalent classes of drug-stores, to wit: the "scalper's," the "mystic" apothecary's, and the reputable pharmacist's, in the order mentioned.

I. No æsthetic taste is requisite to adorn attractively the scalper's show window; as a golden rule, the more slips, posters, and show cards pasted upon windows and doors, with prices conspicuously marked thereon: "50 to 75 per cent lower than the high-priced ring druggists' charges" the better for the dear public and for Messrs. Chatham Street, Cutter & Co.

II. The "mystic" apothecary, usually presided over by a diplomatized (?) M.D., is frequently situated in the middle of a block, occupying one-half of a partitioned store, a sinister looking concern, resembling in appearance an old curiosity shop, and the contents of its show window harmonize well with the character of the establishment; consisting of roots and herbs, attractive on account of odd shape or quaint colors, stuffed reptiles, garden seeds, braces, trusses, etc. In case the reader desires a suggestion in this direction, I herewith give him a gratuitous hint to a first-class attraction: exhibit as a curiosity a live Canadian rattle-snake, for instance, in a glass case, as a central object, and for side pieces place on each side a large bundle of licorice root. This would, undoubtedly, attract attention and prove highly suggestive to the numerous small boy, inasmuch as it would convey to his fertile brain not only a capital lesson in natural history, but also teach him the doctrine of transmutation in the lofty domain of metaphysics, and at the same time demonstrate to him the law of equation of practical chemistry, viz.:



Canada Rattle Snake + Licorice Root = Canada Snake Root + Licorice Rattle.

III. The show window of a reputable pharmacist.—Bearing in mind what I apprehensively said in the beginning of this article, the reader will observe that I do not advocate an indiscriminate exhibition of the hundred-and-one things which are usually kept in drug-stores besides drugs and pharmaceuti-

cal preparations. Contrary to the prevailing idea that the more goods there are crowded into a window the better, I believe the exact opposite, namely, the fewer objects the better: *lucus a non lucendo*—you cannot see the woods on account of so many trees! My very first admonition is, never put into a show window articles of a perishable nature, like bottles filled with cologne, bay rum, mineral waters, patent medicines, etc., etc. Secondly, never exhibit goods in the window (and for that matter neither in show cases in the store proper) which could by any possibility bring a blush to a lady's cheek: syringes, nipples, suspensories, and the like, as I have sometimes noticed, because such things are, in good U. S. English, decidedly objectionable and improper; thirdly, strictly professional pharmacists cannot lend themselves to promote the use of patent medicines, any more than reputable physicians can, hence show-signs of more or less salable nostra, no matter how nicely mounted, pleasing to the eye and desirable to be exhibited, should not be placed in their show windows, but may be used to ornament the little sanctums usually found in the rear of drug stores; at any rate banish them from the window. What then shall be used? And how can we make our windows attractive?

Observe a good engraving or painting: the eyes will be attracted by a prominent, principal group, which catches the vision, *quasi*, as a resting place, whence, glancing right and left, behold the surroundings at ease. Focussed thus, observation is inadvertently, so to say, riveted to the picture, which accomplishes, in this way, the purpose of its master—attraction. This same rule must be strictly adhered to by every one who wishes to display goods, of whatever nature, effectively.

In accordance with the above, I now proceed to give my ideal of a pharmacist's show window.

In conformity with the width, depth, and height, we have for each window colored show bottles to the right and left; their liquids to be of very light and brilliant colors. Above, in the centre of the window, should hang a rustic basket of proportionate size, with, if possible, living flowers and plants, otherwise with artificial ones. At the base, occupying three-fourths of the entire width of the window, there should rest a pedestal, also of proportionate dimensions, in symmetry with the height and depth of window, which base or pedestal is to serve as a platform; painted, decorated, or enameled in color to correspond harmoniously with the tone of the shop fixtures, ceiling, etc., within. Upon this platform, in the centre, should stand a bust of Æsculapius, and at each side of the bust an urn or a vase of Greek design; which objects, however, must only be three-fourths the height of the centre piece. For a back ground, hanging upon rings, sliding on a horizontal bar, there should be a gracefully draped curtain of dark colors and of heavy and rich material, about twelve inches higher than the top of the centre figure. *And that is all.*

For a second window, show bottles, basket, platform and curtain as in the former, only instead of bust and vases, there might be displayed a mortar and pestle as a centre piece, and on each side a little shorter column or shaft, with an eagle, spreading its wings, upon the top.

For a third window, appointments as previously suggested, but instead of the platform a show case of same size as the pedestal above described, containing toilet sponges; upon this case should stand three glass jars, filled with select surgeon's- and cup-sponges, the middle jar to be one-fourth larger than the other two.

These three windows will show objects sufficiently emblematic of our profession and will in all likelihood prove attractive and — last but not least—be acceptable even to those who religiously believe that "Pharmacy is a profession and not a trade!"

NEW YORK, N. Y.

[ORIGINAL COMMUNICATION.]

MERCUROUS IODIDE.

BY R. ROTHER.

THERE are no exceptions to natural laws; neither do their apparent variations confirm them. What are fallaciously believed to be breaks in their continuity are merely the obscurations caused by conflicting interactions. It has been pointed out that nearly all peculiarly active and potent medicinal agents have characteristically high molecular weights and that their effective doses are inversely proportional. There are certainly numerous and grave exceptions militating against this generalization which, as above indicated, future observations will probably elucidate. Whilst mere molecular mass appears to be a conspicuous factor, it cannot be doubted that structure is also a highly important element. But this elaborate compound structural complexity is a direct concomitant of mass, and hence, although body is the fundamental requisite, the constitutional condition is, in reality, the predominant feature. The origin and propagation of a chemical disturbance requires certain elements of instability inherently distinctive of the interacting agents. The resulting change will be in accord with the state of their complexity. Chemical compounds of high molecular weight and numerous constituents, exhibit a proportional variety of properties and a corresponding degree of changeability. When certain of these bodies come in contact with living tissue, the successive chemical, physiological, and physical alterations which they superinduce are mutually deep, radical, and persistent. Similar characters inhere with elementary chemical substances of high atomic weight and quantivalence. The elements possessing these traits in the more exalted degree do not preferably assume these states in their usual forms of combination. Those of comparatively low atomic weight are prone to enter the lower stages of valence, whilst those of high massiveness of molecule have a preponderant tendency to revert to the elementary condition. The scheme or table resulting from the arrangement of the elements in the order of their atomic weights classifies them into series of columns. Each column presents the same number of elements in the regular order of quantivalence from one to seven inclusive, and the columns in regular succession exhibit an augmented scale of atomic weights. This so-called "Periodic Law" shows that elements of the same quantivalence have certain common characteristics in virtue of their particular degree of valence, whether it be normal or assumed. Furthermore the members of each column maintain a community of resemblances, peculiar to that order of the series. Although it is incomparably less important than the property of valence, the writer, however, believes that an appropriate term should be applied to the faculty in virtue of which an element occupies its distinctive place in the periodic scheme by reference to its atomic weight. Such a term may be properly derived from the Greek word *choros* meaning place. Hence *choricity* will indicate the property according to which an element will be dichoric, trichoric, etc., respectively when it occurs in the second, third, etc., column of the series. Consequently, when for example it is stated that mercury is nonochoric and dyadic, it will be known that it is the second member of the ninth series, and vice versa.

The elements belonging to the higher columns of the scheme are in possession of a peculiar property, probably due to the manner of their genesis (*Pharmacist*, 1882, p. 145), which renders the combinations that they form by higher valence more stable than those generated by a lower degree. This is particularly the case with copper, silver, gold, mercury, and lead. Since, however, these compounds formed by lower valence when decomposing, separate into free element and salts of higher valence, it becomes inferable that the lower degree of composition is not of the kind which results from the action of so-called apparent valence. The writer believes that this is another instance of ultra or sub-valence (*New Idea*, Sept., 1884), whereby the element is appended to the appearingly saturated salt by the interposition of fractional bonds. The writer has already indicated (*American Journal of Pharmacy*, Dec., 1883) a manner of graphically expressing this condition without doing violence to the current method of notation. To again illustrate this, preliminary to its new application to elements, the following example may be given.

Mercuric iodide readily dissolves in a solution of potassic iodide and the compound is written $HgI_2 . 2KI$ or HgK_2I_4 is formed. In this new combination the two coalescing salts, which were primarily fully saturated compounds, are very evidently held together by some novel force originally not apparent. This new affinity, or rather sub-division of an old one fully pres-

ent, can be assumed to act between any number of molecules like or unlike, simple or compound. Hence it may be granted that four molecules of potassic iodide are thus held together, and that two potassic radicles are then substituted by one mercuric radicle. Now the available and unabsorbed chemism of any element can be symbolized as though itself material. Thus four free iodine radicles can be conceived as an indissoluble unit, and their available affinities indicated by an additional symbol, making the expression $I_4 \times_4$. Then, when the affinities are absorbed, they can be represented as substituted by the absorbing element and therefore disappear. By giving the symbols a structural form a result like the following will be had: (KI_3)—Hg —(KI_3).

The mercurous salts, as for instance the iodide, are habitually represented by structure thus: I—Hg—Hg—I. Now if they were constituted in that manner, they ought, by analogy, to possess greater stability than the mercuric salts, which they do not. Hence, as already stated, the writer believes that their constitution rests on another principle, namely, that just above expounded. Representing the potential chemism of mercury by $Hg \times_2$ and then conceiving a replacement by an iodine radicle, the univalent radicle $Hg \times I$ remains. Substituting this in I—Hg—I and I—Hg—(HgI) results. Now this formula does not materially differ from that usually assigned to mercurous iodide, but the writer claims this form places the mercury within the parenthesis into the peculiar attitude that characterizes the indefinite union effected by subvalence in general. In order to make the illustration plainer, a triple molecule of mercury can be assumed in which Hg is replaced by I_3 yielding (Hg_3) I_3. Another means of exemplifying the feebler union in mercurous than in mercuric salts is seen in the action of potassic iodide on mercurous iodide, whereby metallic mercury and potassio-mercuric iodide result. This makes it evident that the affinity among the components of the latter salt, which is undoubtedly subvalent, is superior to that of the mercurous iodide constituents which presumably indicates the superlative binding powers attendant on apparent valence. Not even a simple double decomposition between a mercurous salt and potassium iodide can become completed before this destructive tendency appears. It is, however, a remarkable fact that a perfect double decomposition without ulterior results is readily completed between a mercurous salt and the potassio-mercuric iodide. In this noteworthy reaction a pure and bright yellow mercurous iodide, and the scarlet-red mercuric iodide are together precipitated according to the following equation: $2(HgNO_3) + HgK_2I_4 = 2(HgI) + HgI_2 + 2(KNO_3)$. The mercuric iodide dissolves in a hot saturated solution of sodium chloride, whilst the mercurous iodide remains insoluble in a perfectly pure condition. It is furthermore remarkable that when mercuric iodide is dissolved in hot sodium chloride solution, it is decomposed by mercurous salts as follows: $2(HgNO_3) + HgI_2 = 2(HgI) + Hg(NO_3)_2$. These two reactions, by the intervention of sodium chloride, make it not only possible, but even extremely practicable of producing perfectly pure mercurous iodide with the greatest ease and facility from mercurous chloride and potassic iodide—a performance which heretofore was impossible. The reaction takes place as follows: $HgCl_2 + 4KI = HgK_2I_4 + 2KCl$ and $4(HgCl) + HgK_2I_4 = 4(HgI) + HgCl_2 + 2KCl$.

The methods now in vogue for the preparation of mercurous iodide are chiefly based upon the direct reaction of the two elements and purification of the product by means of alcohol. The writer, under a pseudonym (*Pharmacist*, May, 1873), proposed a process for this salt which employed hot sodium chloride solution in place of alcohol. The product was absolutely free from mercuric salt, but slightly contaminated with metallic mercury which imparted the usual greenish tint. Pure mercurous iodide is, however, of a bright yellow color which is speedily dimmed by exposure of the substance to light. Hence, during its course of preparation as well as subsequently, even a strong diffused light should be carefully avoided. From the above considerations the following process is derived:

Mercurous Chloride.	9,404 parts
Mercuric Chloride...	2,705 "
Potassium Iodide....	6,824 "
Sodium Chloride....	10,000 "
Water, sufficient.	

Into a capsule of convenient size place the mercuric chloride, sodium chloride, and 100,000 parts of water; then, after complete solution, add the potassium iodide and stir the mixture until the scarlet precipitate at first formed has perfectly dissolved. To this solution now add the mercurous chloride, and during constant stirring heat the mixture on a water-bath for about twenty minutes. The bright yellow precipitate having quickly subsided, decant the clear liquid and mix the sediment with a volume of water equal to the decanted portion, and remove the supernatant liquid as before. Repeat this operation once or twice more, and then spread the bright yellow mercurous iodide evenly about within the capsule and dry it by exposure in the open air, but well secluded from the light.

DETROIT, MICH., Sept., 1884.

[ORIGINAL COMMUNICATION.]

GRECIAN WINES.

BY PROF. XAV. LANDERER, OF ATHENS.

THE wines of Greece have been pronounced, both at the Olympian Expositions at Athens and at all International Exhibitions, to deserve the general title of "excellent," being—aside from the bouquet and taste—perfectly pure, because made from pure grape-juice, and moreover rich in phosphates, while the red wines, in addition, are rich in tannin and extractive matter.

The Greek wines are superior to all others for preparing medicinal wines; and the red wines, especially, are highly prized as superior tonics in chronic diseases, debility, and wherever a generous wine is indicated. Those who desire to obtain the very best wines may find them upon the islands of Santorin, or of Ica, or in Eubœa. The sweet wines of Santorin are "ladies' wines," and surpass all similar products of Sicily or Spain.

One of the domestic wines, known from olden times, is the so-called *pitch-wine*, or *retsinato* (*οἶνος ῥητινίτης*), which is drank by thousands, and has acquired its name from the circumstance that it has been treated with pitch (from firs or pines) and gypsum. This wine has the common reputation of being useful in diseases of the bladder and kidney and in gravel.

The strongest of all Greek wines, with a proportion of alcohol up to 16 per cent, are those which are prepared from grapes. Such wines are specially adapted for improving the quality of lighter wines. The red wines of Greece are rich in tannin and coloring matter, and are suitable (or actually used?) for the purpose of improving the color of other European red wines. Such mixing or addition is a legitimate proceeding [provided pure wines only are used] and cannot be called either sophistication or falsification.

As a special peculiarity it may be mentioned that, up to the present time, Greece has remained the only wine producing country in Europe in which the phylloxera has not established its ravages.

[As a note to the above, we may state that Greek wines have, for some time past, been regularly used on the Continent of Europe, particularly in England and Germany, for medicinal purpose, and leading authorities of the medical profession have declared certain brands, chiefly of the heavier red wines, as being most admirably adapted where generous, astringent tonics are needed. A very sensible method of introducing these wines is adopted by certain German importers, who undertake to send to any address a selection of various brands at very reasonable prices. We have such a list before us, in which an invoice of 12 bottles, representing select wines of Cephalonia, Corinth, Patras, and Santorin, are offered (including bottles and box) for 19½ marks, carriage to be paid on delivery. In the United States, of course, the price would be proportionately higher; nevertheless, a very fair trade could be established, provided care be taken that only genuine wines are furnished.—ED. AM. DRUG.]

The Estimation of Diastase in Extract of Malt.*

Two processes have been observed. One by Mr. Carl Jungk, depending on the time taken for conversion of 10 grammes of starch into dextrin and sugar, estimated by the coloration produced by a drop of the reactive fluids on one drop of standard solution of iodine. This is found to be unreliable, as the reaction is not sharp. When the proportion of starch becomes small, a brown color is produced with iodine, which becomes blue if left for twenty-four hours.

The second was suggested by Messrs. Dunstan and Dimmock: 1 gramme of starch is gelatinized with 100 grammes of water; the mucilage is mixed with various quantities of a 10-per-cent solution of malt extract, and kept at 100° F. for three hours. Each portion is then tested with iodine, which indicates clearly to which sufficient malt extract has been added to completely convert the starch. This process was found to yield good and constant results, but it requires much time and space, and many experiments must be made in each case. Dr. Wm. Roberts has proposed to make first a rough estimate of strength by the time taken to convert the starch, and a closer approximation by Dunstan and Dimmock's process. The author proposes to simplify the operation as follows: 1.5 grammes of malt extract are dissolved in 15 C.c. of water, and mixed with a mucilage of 1 gramme of starch in 100 C.c. of water. The mixture is raised to 100° F., and tested from time to time by adding two drops of iodine solution to 5 C.c., and comparing with 5 C.c. of a similar mixture to which no iodine has been added. The end of the reaction is then easily noted. Very good malt extract will convert this quantity of starch in half an hour. Many commercial specimens require three hours. If a longer time is needed, the extract should be condemned, as it has probably been overheated.

IT is proposed to hold in London, in 1886, an American Exhibition, in which American manufacturers, merchants, and producers will be invited to show the products of American industry of all kinds and descriptions. The intention is that the exhibition shall be opened on May 1st, 1886.

* Abstract of a paper by T. S. Dymond, read before the British Pharm. Conf. Taken from the *Chemist and Druggist*.

[Original Communication.

ACACIA HOMALOPHYLLA.

(Violet Wood.)

BY H. STIEREN, M.D.

This wood occurs in commerce in smoother or rougher pieces, exhibiting bark, bast, young wood, and core, of light or dark brown color. The scent, particularly upon friction, reminds one rather of violets proper than of orris root.

In making a tincture of the wood, a piece was selected which contained the four different parts mentioned, from each of which a corresponding amount was taken, viz., 2 grammes of bark and splint, 4 grammes of younger wood, and 8 grammes of heart-wood, or core, in about the proportion as they occurred in the drug; 14 grammes in all were bruised and macerated with eight times their weight, equal to 112 grammes of alcohol (94%), when the alcohol commenced immediately to be colored brown, indicating much extractive or coloring matter.

From intermediate experiments it was ascertained that the most highly scented part of the wood is the centre, of a deep, brownish red color, with purplish tinge, remotely resembling black walnut; the younger wood, of a whitish color, possessing only a faint smell, which slightly increases again in the bast and bark; the bast is of a yellowish-brown, and the bark of a deep brown color.

A small quantity of the bruised, dark heart-wood, slightly boiled with water, imparted to the water a rich, yellowish-brown color and the peculiar flavor, and so did the bast and bark, while the younger wood, of yellowish-white color, did not, upon boiling, color the water at all, and imparted only a scarcely perceptible flavor.

The watery decoction of the dark wood, as well as the alcoholic tincture (the latter previously diluted with the same volume of water) produced with the salts of iron a muddy, greenish turbidity, with simultaneous greenish-brown precipitate. Potassium bichromate caused at first no change; after a while the liquid assumed a slightly muddy, brownish color.

The alcoholic tincture, of rich brown color, was filtered off from the wood, and the remainder treated with 56 grammes alcohol and, after due extraction, mixed with the first portion. This tincture left, upon evaporation, a reddish-brown, easily pulverulent residue, which, *particularly by rubbing or friction*, exhibited a persistent and lasting violet odor, with an additional scent of stewed prunes.

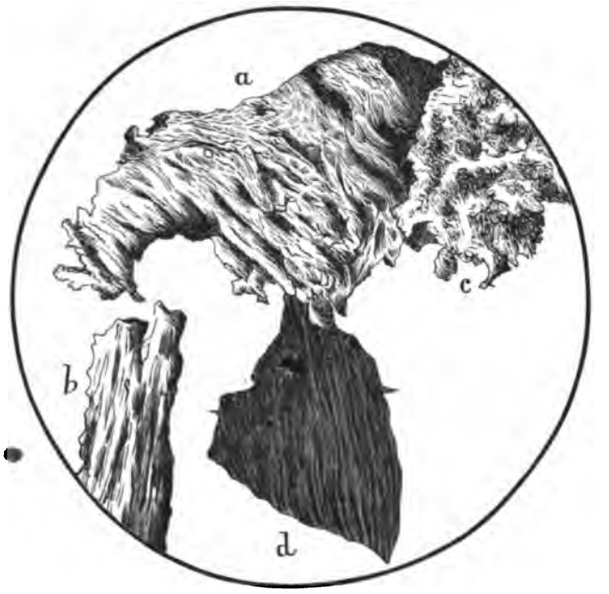
Water yielded with the wood a rich brown liquid of the same odor, only not so strong as the alcoholic tincture, the odor being lost upon evaporation to dryness, leaving a brown residue.

Proportionate amounts of the wood, as indicated above, were distilled with water and a small amount of alcohol, after sixteen hours' maceration, the operation resulting in a colorless, very slightly turbid distillate, of violet scent, with the unavoidable, yet withal pleasant prune-flavor adhering.

In the alcoholic tincture, potassium hydrate causes a brown precipitate, insoluble in excess of alkali; sulphuric, nitric, and muriatic acids leave the tincture apparently unchanged, while the peculiar odor is more strongly developed; acetic acid hides the odor more or less.

From the foregoing statements it becomes apparent that the persistent odor of the wood rests entirely in a gum-resin with oleo-resin, and the wood might find its best application in the composition of sachet powders, its odor being so persistent.

Detroit, Mich.



Violet Wood (*Acacia homalophylla*). *a*, Core, horizontal section, × 75. *b*, Young wood, vertical section, × 75. *c*, Bast, coarse powder, × 75. *d*, Outer bark, vertical section, × 75.

Melitose in Cotton-Seed.

The peculiar variety of sugar known as *melitose* ($C_{12}H_{22}O_{11}.3H_2O$), discovered by Johnston in 1843, has hitherto been found only in a kind of manna obtained from certain species of eucalyptus of Van Diemen's Land. H. Ritthausen, however, has ascertained that cotton-seed contains considerable quantities of it.—*Journ. f. prakt. Chem.*, 1884, 351.

[Original Communication.]

CASSIA OCCIDENTALIS.

BY H. STIEREN, M.D.

The seeds of this plant, which is occasionally found in the Southern States, contain *no* caffeine, nor any other alkaloid, but some fatty oil which easily becomes disengaged and empyreumatic upon application of heat to the seeds, in a partially closed vessel. The parching or toasting of the seeds causes volatilization of water contained therein; then the oily substance makes its appearance on the walls of the container, accompanied by an odor closely resembling that of parched beans or peas, very remotely, and with some imagination only, simulating that of coffee. Treatment of the parched seeds with dilute alcohol, as also the turbid, brown watery extract, developed the presence of phosphates of lime, potash, and soda.

Detroit, Mich.

The Santonin Manufacture in Turkestan.

A large factory is being built at present in the city of Tshemkent, in the Syr Daria district of Turkestan, for the manufacture of santonin from santonica. There are only two places known in the world where santonica is cultivated, namely, in some localities of South America, and in the not very extensive valley of the mountain-river Arissi, about Tshemkent in Turkestan.

In South America, santonica is obtained only in small quantities, scarcely sufficient for home consumption, and is quite inferior in quality to that raised in Turkestan. [This is probably due to the difference in species, as well as to difference of soil and climate.—Ed.]

In the valley of the Arissi, the so-called worm-seed (*Artemisia Santonica* or *maritima*) has grown wild from immemorial times. The plant is called *darmena* by the natives, and over 1,600 tons of the seed are annually collected. It does not require cultivation. The seed is collected by the Kirghise and Sartes during August, and is then sent in larger or smaller lots to the interior of Russia.

Large caravans of camels laden with wormseed annually pass through the steppes of Asia, towards Orenburg, whence it is further transported to Moskow, the chief centre for the market of this product.

Though wormseed is partly used as such for medicinal purposes, yet its active principle, *santonin*, is generally preferred. In the whole of Europe there are (or have been) only five factories of santonin, three of which are in Germany, and one in England. The fifth, of small extent, was located at Orenburg, but was in operation only three years. Hence, the establishment of an extensive factory in the very heart of the home of the crude drug is quite a surprising but progressive undertaking. Its establishment owes its origin to the enterprise of the large house of W. J. Iwanow, of Tashkent.

As 100 pounds of worm-seed yield only 2 pounds of santonin, it will easily be seen that the saving of the expense of carrying 98% of useless material for such long distances will enable this factory to produce santonin at a price which will compel the suspension of the manufacture elsewhere. In fact, all foreign factories, except one in Hamburg and one in England, have already ceased operations.

Up to the present, the Turkestan works have cost 950,000 marks ($245,600), and when completed will have cost 350,000 marks ($86,800) more. The company (Iwanow & Sawnikow) intends to work up about 1,600 tons of seed annually, representing a product of 32,000 kilos of santonin. The interior arrangements of the factory and the technical working has been assumed by the firm of Biber and Zobel, of Hamburg, which has also the monopoly of the sale of the product for the first five years. The necessary machines and apparatus have been furnished by the firm Burgdorf Bros. (Gebrüder Burgdorf), of Altona. A peculiar feature is this, that all the heating, both of the steam-boilers, the workshops, and dwelling-houses, will be done by burning the refuse from the factory. Transportation of the machines was a very difficult matter, and cost about 33,000 marks ($8,184). Special wagons had to be built to convey the heavy boilers, machines, etc., for a distance of 1,100 kilometers (690 miles). From Orenburg to Tashkent transportation was performed by camels, and occupied a whole year. It is expected that operations will be commenced during the present October.—C. O. Cech, in *Dingler's Pol. Journ.*

Prof. Flückiger (*Arch. d. Pharm.*, 222, 612) succeeded in obtaining specimens of the *Artemisia* growing in the steppe about Tshemkent, and found

that they were larger than the species of *Artemisia Cina* of Willkomm, which he had mentioned in his Pharmacognosie (1883, p. 778). The new specimens are nearly one-half meter high, the coarse woody stems arise, more than one in number, from the strong, very dense root, which is 1 Cm. in thickness, and reaches 20 Cm. in length. Otherwise the species agrees with Willkomm's, and also with the *Artemisia pauciflora*, illustrated by Bentley & Trimen (plate 157). Whether this *Santonica* should be classed as *Artemisia Cina*, or as a form of *A. maritima*, must be left to the decision of specialists; Prof. Flückiger could not find any important differences. Whether santonin occurs only in the particular species of *Artemisia* above mentioned, or also in others, and whether it exists already in young plants, and increases, decreases, or disappears with the growth of the plant, are questions which will probably be decided in the near future.

Papayotin.

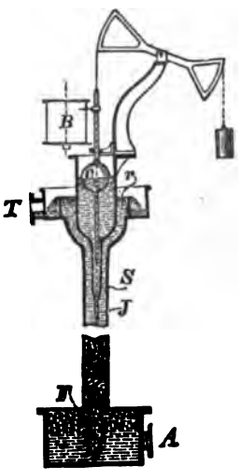
PAPAYOTIN is the active principle of the juice of the melon-tree (*Carica Papaya* L.), native of the tropical zones and flourishing especially in Brazil, where it only requires about 6 months to grow to a man's height, and to furnish fruit which ultimately attain a weight up to 15 pounds.

After three years, when the tree is about 18 feet high, and about a foot in diameter, it begins to die off, from above downwards. Up to this period, however, it is very fruitful, there being no period of the year when it does not bear either flower or fruit. The wood contains an abundance of yellow, rather bitter, milky juice, which possesses in a high degree the property of digesting albumen, and therefore also meat, similar to gastric juice. It has, moreover, the remarkable property of not confining its digestive action to acid solutions—as is the case with pepsin—but it is equally active in neutral or alkaline solutions.

The French chemist, Wurtz, in conjunction with Bouchut, first extracted the digestive ferment, *papayotin* or *papaïn*, in 1880. Bouchut employed it in the Child's Hospital in cases of dyspepsia and other disturbances of the digestive organs, for which pepsin had previously been used, and obtained the best results. Rossbach found that the substance was capable of rapidly dissolving and removing the membranes forming in croup or diphtheria, and thereby greatly contributing to a favorable termination of the diseases. It is assumed that, by the "digestion" of the diphtheritic membranes and the morbid elements probably existing in them, the further introduction of the latter into the blood is prevented. But it will require further study to fully clear up its method of action and its value as a remedy in these diseases (it is applied by brushing over the diphtheritic spots a solution of the substance). It is, however, important that only a reliable preparation be used, since there are some in the market which are quite inert.—DR. W. FLIESS, in *Pharm Zeit.*

The Alkaloids of Aconitum Lycoctonum.

TWENTY years ago, Dr. Hübschmann described, under the names lycoctonin and acolyctin two new alkaloids that he had discovered in the roots of the yellow flowered *Aconitum Lycoctonum*. Subsequently these compounds were further investigated by Professor Flückiger and others, amongst whom Messrs. Wright and Luff came to the conclusion that they were identical with aconine and pseudaconine, the decomposition products of aconitine and pseudaconitine respectively (*Pharm. Journ.* [3], viii., 169). The subject has recently been taken up afresh by Messrs. Dragendorff and Spohn, who report (*Ph. Zeit. f. Russl.*, xxiii., 313) that they have found Hübschmann's lycoctonine and acolyctine to be really decomposition products, though not of aconitine and pseudaconitine, but of two hitherto unnoticed alkaloids peculiar to *A. Lycoctonum*, which they have named lycaconitine and myoctonine and represented by the formulæ $C_{37}H_{51}NO_6$ and $C_{37}H_{59}N_2$ and O_6. Some physiological experiments made by Herr Jacobowsky (Dissertation Dorpat) appeared to show that lycaconitine is an energetic poison, resembling curare in its action, but not suitable for therapeutic purposes, as it is imperfectly absorbed by the stomach, and under the influence of the secretions passes into a condition in which it is inert.—*Pharm. Journ.*



APPARATUS FOR THE CONTINUOUS REGISTRATION OF SPECIFIC GRAVITY.

A RECENT German patent (27,928) covers a novel method for continuously registering the specific gravity of liquids during the process of distillation. The apparatus consists of a standpipe *S*, with overflow *r*. Within the standpipe is placed a smaller one, *J*, the lower part of which consists of an expansible bulb (*F*) or membranous bag. This inner pipe is filled to a proper height with a liquid of known specific gravity. The distillate of which it is desired to control the density, enters the apparatus at *A*, flows through *S*, and escapes through the aperture *T*; and according as its density becomes higher or lower, the inner tube is floated higher or lower, the variation being registered by means of the floating ball *c*, and the drum *B*, which is made slowly to revolve, and upon which a corresponding curve is drawn by a pencil point attached to the rod arising from *c*.

The peculiar advantage of the arrangement consists in this, that the unknown specific gravity is measured by the height of the column of a liquid of known specific gravity which balances a column of constant height of the distillate; and, further, that both liquids are kept at the same temperature, whereby the indications of the apparatus become independent of temperature. Of course, if the density of the two liquids is to be stated at other temperatures, a simple calculation will suffice, if the coefficient of expansion is known.

The Nature of Chlorophyll.

DR. HANSEN considers that chlorophyll consists of two coloring-matters, a green and a yellow, the relative proportions being 100 of the former to 1 of the latter. They are not combined, but exist side by side in the plant. Both have been obtained in the crystalline state, the green forming spheroidal crystals, and the yellow crystallizing in needles. This has been effected by removing the fatty matters accompanying them by saponification and separating the chlorophyll-yellow by petroleum spirit, in which it is soluble, while the chlorophyll-green is not. The solution of the latter shows a red fluorescence, but that of the yellow shows none.—*Nature*, and *Pharm. Journ.*

Copper in Extract of Cannabis Indica.

THE statement of Mr. Maclagan (see our July number, p. 121) that the fine green color of extract of Cannabis indica is due to the presence of minute quantities of copper, has elicited a comment by Mr. G. B. Schmidt, one of the editors of the *Weekblad voor Pharmacie* (Groningen, Aug. 18th, 1884), who inserted a translation of the article in the journal. The following is a translation of Mr. Schmidt's remarks:

"When the *American Druggist* containing the preceding paper reached me, I happened to have in stock an alcoholic tincture of Cannabis indica prepared a few weeks previously. I at once took 100 cubic centimeters of the tincture, which had a but slightly-green color, and evaporated it to an extract upon the water-bath. The product was a resinous, but slightly green and rather blackish-colored extract, which was dirty-brown in thin layers. It contained no trace of copper, which in fact it could not have absorbed, as no copper had been used during any steps of the process.

"That copper vessels are very unsuitable for preparing extracts from alcoholic tinctures I have experienced during the last year, to my personal loss. A number of my narcotic and other alcoholic extracts turned out to be more or less contaminated with copper, some of them indeed to a great extent. The copper could be easily detected by dissolving a little of the extract in diluted sulphuric acid, and placing a polished knitting-needle in the solution."

Intoxicating Vapors from Datura Fastuosa.

IN a list of the economic products exhibited in the Calcutta International Exhibition, 1883–84, Dr. G. Watt mentions a curious use of the seeds of *Datura fastuosa*. In order to render liquor more intoxicating, the seeds are burned on charcoal under a vessel inverted to catch the smoke, and this vessel is then placed over another containing the liquor (*Gardner's Chronicle*, June 28th, p. 839). This appears to be another instance in which, as in opium-smoking, either a portion of the active principle is volatilized unchanged, or a product possessing similar properties is formed during combustion.—*Pharm. Journ.*

Salicylate of Atropine.

SALICYLATE of atropine appears to be in some quarters displacing the sulphate. Federici prepares the neutral salt (*Pharm. Post.* xvii., 733) by dissolving the atropine (23 parts), with the aid of a gentle heat, in a suitable quantity of pure alcohol, and then adding the salicylic acid gradually, to complete neutralization (18 parts), the solution being carefully tested with litmus paper during the operation. The liquid is then evaporated in a water-bath to a gelatinous consistence, the mass assuming an amber color, and the drying is finished in a sand-bath or drying-closet. Exposed to the air, the compound quickly deliquesces, but it is said to keep well, if properly preserved, though the solution is very unstable.—*Pharm. Journ.*

On the Volatility of Glycerin.

NESSLER AND BARTH, in the course of a paper on wine analysis in the *Zeitschr. f. Anal. Chem.*, 1884, p. 318, give a detailed report of their investigations into the errors of the determination of glycerin, due to its volatility at the temperature of boiling water. That glycerin is slightly volatilized when heated in open vessels, particularly when mixed with water or alcohol, had already been known, but no exact data were available to determine the amount actually volatilized. The subject was studied under various aspects, and we give a resumé of the results, so far as they may be of general interest to our readers.

1. *Volatility of dry Glycerin when heated in a drying chamber.*

a. 1 Gm. dry glycerin heated in a platinum capsule, 8 Cm. wide above, 6 Cm. wide at the bottom, and 2 Cm. high. *Loss*, during the first two hours, 64 milligrammes; during the next two, 29 Mg.; during the last three, 21 Mg.

b. 0.5 Gm. heated in same manner. *Loss*, during the first two hours, 36 Mg.; during next two, 28 Mg.; during the last three, 23 Mg.

c. 1 Gm. glycerin heated in a glass-vessel with vertical sides, of 4.8 Cm. diameter and 4 Cm. height. *Loss*, during the first two hours, 36 Mg.; during the next two, 14 Mg.; during the last three, 5 Mg.

d. 0.5 Gm. heated under the same conditions. *Loss*, during the first two hours, 45 Mg.; during the next two, 11 Mg.; during the last three, 6 Mg.

The results obtained in a drying oven are much different from those obtained on an open water-bath. The authors offer the following explanation of the fact that the rate of volatilization diminishes with the time. There being only a feeble current of air entering at the lower edge of the door and passing out through an opening in the top, the heat is only sufficient to carry off any aqueous vapor which remains steam until it leaves the chamber. The glycerin vapors, however, which at 100° C. (212° F.) are far below the boiling point, constantly tend to condense again. Gradually the interior of the chamber will become filled with a mist of glycerin, which is no longer amenable to the feeble current, and becomes denser on protracted heating.

2. *Volatility of dry glycerin upon an open water-bath.*

a. 1 Gm. of glycerin, heated in platinum vessel during one hour upon a briskly boiling water-bath, lost: a. 37 Mg., b. 39 Mg., c. 29 Mg., d. 30 Mg.

b. 0.5 Gm. heated in same manner lost: a. 34 Mg., b. 29 Mg., c. 24 Mg., d. 30 Mg.

c. 1 Gm. heated in glass vessel in same manner lost: a. 30 Mg., b. 18 Mg.

d. 0.5 Gm. heated in same manner lost: a. 11 Mg., b. 2 Mg.

The inner walls of the vessels become covered with a thin coating of glycerin. A regular mist of glycerin may be observed hovering over the surface of the liquid, and unless there is a draft to carry off the mist, its presence will retard further evaporation. Of course, the more shallow the vessel is, the more readily these vapors will dissipate. Hence the quantity of glycerin evaporating at 100° C. is—aside from other conditions—the smaller, the higher the walls of the vessels are.

In order to ascertain what influence the area of evaporating surface has upon the rate of evaporation, 2 Gms. each of glycerin were heated in two platinum vessels of different diameters. In one of 6 Cm. diameter, the loss was, in the first two hours, 120 Mg.; in the next hour, 54 Mg. In a capsule of 3.8 Cm. diameter the loss was, in the first two hours, 47 Mg.; in the next hour, 20 Mg.

When a glass capsule 5.7 Cm. diameter and 2 Cm. depth was substituted for the platinum capsule, the loss amounted, in two successive hours, to 26 Mg. and 20 Mg. respectively, showing that the rate of evaporation is less in a vessel made of a material of low heat-conducting power.

3. *Volatility of glycerin in steam.*

Mixtures of known strength of pure glycerin and water were prepared by mixing 10 Gm. of carefully dried glycerin with water to 100 C.c., and using various dilutions of this standard solution. The volatility in steam was determined in the following manner.

As small quantities of water are retained even when the mixture has been evaporated to a syrupy consistence, the weight of this residue alone could not be counted as glycerin. Hence after reaching a syrupy consistence, it was further dried for exactly one hour upon a briskly boiling water-bath, the total loss then determined, being the sum of the loss (W), caused by evaporation with the steam and of the loss (D) caused by dry-heating for one hour. It was then once more dry-heated on the water-bath. The loss (D_1) caused by the latter (which may be held equal to that suffered by the previous one hour's drying) is deducted from the loss first ascertained, and the remainder expresses the rate of evaporation in steam (W) $(W+D)-D_1=W$.

It was found that the rate of evaporation of glycerin in steam depends both on the percentage of glycerin present and on the quantity of water evaporated.

Results of experiments:

Mixtures of

a. 1 Gm. glycerin in 100 C.c. aqueous solution lost 51 Mg.
b. 1 Gm. glycerin in 50 C.c. lost 49 Mg.
c. 0.5 Gm. " " 100 C.c. " 24 Mg.
d. 0.5 Gm. " " 50 C.c. " 27 Mg.
e. 0.5 Gm. " " 25 C.c. " 34 Mg.
f. 0.25 Gm. " " 25 C.c. " 23 Mg.

The influence of the quantity of evaporated liquid upon the volatility of the glycerin is plainly evident from examples *a*, *d*, and *f* which contain one per cent; with the greater quantity of water a larger amount of glycerin volatilizes. The same may be seen by comparing the two-per-cent solutions *b* and *e*. In *c*, *d*, *e*, which contained equal quantities of glycerin, the least amount of the latter evaporated from the most dilute and the largest quantity of glycerin from the most concentrated solution.

The evaporation of glycerin with steam must be considered at least partly to be a mechanical projection of its particles with the steam. This would explain why a concentrated solution of glycerin loses more of the latter in a given time than a dilute solution.

Kayser, who had previously examined the rate of evaporation of glycerin, particularly with reference to its influence upon the results of wine-analysis, had announced that each 100 C.c. of liquid containing any (large or small) quantity of glycerin lost 150 milligrammes of the latter on evaporation, and that this quantity (150 Mg.) must be added to each residue thus obtained. Hence a liquid containing originally less than 150 Mg. of glycerin should be supposed to lose the whole of it on evaporation. Nessler and Barth, however, prove that Kayser is wrong, inasmuch as a solution containing 100 Mg. of glycerin in 100 C.c. of liquid only lost 22 Mg. with steam.

4. *Volatility of glycerin with vapor of alcohol.*

The alcoholic solutions were prepared with 10 Gms. of thoroughly dry glycerin and enough 96% alcohol to make 100 C.c.

The evaporation was conducted upon a feebly boiling water-bath, so as to cause only a slight commotion of the liquid. After the evaporation of the alcohol, the water-bath was brought to a brisk boil, so as to dry-heat the residue.

g. 1 Gm. glycerin in 100 C.c. lost 49 Mg.
h. 0.5 Gm. " " 100 C.c. " 69 Mg.
i. 1 Gm. " " 50 C.c. " 65 Mg.
k. 0.5 Gm. " " 50 C.c. " 65 Mg.
l. 0.25 Gm. " " 50 C.c. " 65 Mg.

Though these values appear to be very uniform, they are nevertheless not available for making a direct conclusion, since there is always some loss by mechanical projection. Correct deductions can only be made if the spirting is absolutely prevented. This may be done by setting upon a briskly boiling water-bath a thin-walled glass beaker containing water, and into this the capsule with the alcoholic solution of glycerin. An experiment thus conducted showed that a solution of 1 Gm. of glycerin in 50 C.c. of alcohol lost only 2 Mg.

Nessler and Barth strongly object to any correction or allowance to be made for any supposed loss of glycerin during evaporation in wine analysis, but to reduce this loss to a minimum by carefully operating.

The Therapeutic Future of Chinoline Derivatives.

SINCE chinoline (or quinoline) and its salts have been introduced as antipyretic remedies a few years ago, a series of secondary products or derivatives from this nucleus has gradually been prepared and tried therapeutically. Only a few have thus far been found to work well in practice, notably the so-called *kairine*, which shortly after its introduction almost totally displaced the chinoline itself. New products of this nature are constantly being drawn within the sphere of experimentation, and chiefly owing to the investigations and synthetical results obtained by Dr. L. Knorr, one of the chemical staff of the immense coal-tar color works of Meister, Lucius & Bruening, at Hoechst.

One of the bodies which is said to promise good practical therapeutic results is *oxymethyl-chinoline*, ($C_{10}H_{11}NO_2$,) which is prepared by heating ethyl acetate and aniline together to 120° C., and treating the product with concentrated sulphuric acid. Still more promising are said to be the products of the reaction of ethyl acetate upon derivatives of hydrazin-chinicine. Among these are some compounds which crystallize very handsomely, such as the *anhydride of oxymethyl chinicine*, or the *dimethyl-oxychinicine*, (which is very soluble in water) and other bodies, the chemistry of which need not be further explained here until they have actually been introduced into practice. — *Ber. d. Deutsch. Chem. Ges.* and *Ph. Zeit.*

Condensed Mares' Milk.

WE have in a former number mentioned the fact that a company has been started for the condensation and sale of mares' milk. The name of the firm is Carrick's Russian Condensed Mares' Milk Company; it is worked chiefly with British capital, and its factory and herds of mares are situated at and around Orenburg.

The condensed milk is sold in hermetically sealed tins. It appears in form of a very thick mass of almost pure white color, agreeable odor, and pure, somewhat honeylike taste. According to a statement on the label, it is prepared by adding to the fresh mares' milk 3 per cent of cane sugar, and then condensing to ⅛ the original volume.

Two samples yielded, on analysis, the following results:

	I.	II.
Water	26.73	24.04
Solids	73.27	75.96
Fat	4.77	6.20
Protein	13.69	12.17
Sugar	53.07	55.81
Ash	1.74	1.78

—*Milchzeit.* and *Pharm. Centralbl.*

Alkaloidal Value of Cultivated and Wild Belladonna.*

In previous reports, from a limited number of analyses, it had been shown that wild belladonna was the richest in alkaloid, also that the plant of both kinds was most active at the time of flowering.

The above results requiring confirmation, and further analyses being desirable of the second, third, and fourth year's growth of belladonna, these were undertaken. All plants were in the flowering stage and of average growth.

The method of examination was to take the leaf and root in fine powder, dried at 100°–105° F., and prepare an alcoholic extract; this extract was dissolved in water, and the solution treated with ammonia and ether.

The ether was now removed and shaken with acetic acid; the acetic acid solution treated with ammonia and again with ether; the ether on withdrawal gave the alkaloid as a crystalline residue. The amount of alkaloid was found volumetrically, by means of a dilute sulphuric acid, 100 C.c. of which exactly equals or neutralizes one gramme of atropine. This process, which had been subjected to a check operation, is easy of application and accurate in result.

Thirty-nine analyses were made of root and leaf, and with one exception the alkaloid was found most abundantly in the leaf; and the wild plant gave the largest proportion, thus confirming previous work. A recumbent variety of belladonna, first noticed by Mr. E. M. Holmes, was examined and found to give the average yield of alkaloid. The author's conclusions from his experiments and their bearings are as follows:—

1. Wild belladonna contains a larger quantity of alkaloid than the cultivated kind, but the difference is not so great as to be material in making pharmaceutical preparations; nevertheless, for uniformity's sake, the cultivated only should be used, the wild being retained for making atropine.

2. The leaves, without exception, have been found to yield the highest percentage of alkaloid; following these the root, fruit, and stem in the order of sequence. From this observation it would seem that preparations of the leaf should supersede those of the root, but when we consider the great strength of the liniment of belladonna, the only official preparation made from the root, its comparative cleanliness, and the general satisfaction it gives the medical profession, there is no good reason to advocate a change. The expediency of introducing an alcoholic extract of the leaves into the B. P. will be generally acknowledged, for such an extract is occasionally required in most dispensing establishments, for making belladonna suppositories, and it certainly would supersede, with advantage, in belladonna plaster, the extract made by the sadly unskilful process now official.

3. It was shown in a previous communication that the first year's growth of belladonna is a small plant, unworthy of collection, containing but little alkaloid; from the second to the fourth year the quantity is fairly uniform. At these ages, then, and at the period of flowering, is the best time for collecting the plants.

4. From an examination of the roots collected in spring, summer, and autumn, it was found that they contained about the same amount of alkaloid, so that the process of leafing and flowering does not exhaust the roots of alkaloid, but the experiment shows there is a simultaneous development of root and leaf, therefore the roots may be gathered at the same time as the leaves.

* Abstract of paper read before the Brit. Pharm. Conference by A. W. Gerard. After *Chem. and Drugg.*

Phospho-Citric Acid.

Mr. J. Napier suggests, in the *Analyst*, the employment of phospho-citric acid in the place of citric and tartaric acids in the preparation of certain mineral waters. The latter acids have long been used for acidulating or giving to mineral waters an acid flavor, but these acids have certain disadvantages, inasmuch as their solutions cannot be kept for any great length of time without the formation of a fungoid growth, and also the extreme difficulty of obtaining them free from lead.

A solution has recently been offered to the trade called phospho-citric acid intended to be used for this purpose. It contained:

	Per cent
Free Phosphoric Acid	34.34
Phosphate of Magnesia	1.86
Sulphate of Magnesia	1.93
Sulphate of Lime	.55
Iron and Alumina	traces
Citric Acid	6.50
Water	54.82

Poisonous metals were entirely absent and so, also, were free sulphuric, hydrochloric, nitric, and acetic acids. The solution was comparatively clear and almost colorless.

According to the proportions instructed to be used, the quantity of phosphoric acid in a half-pint will amount to .95 grains. The flavor and appearance were found to be quite as good as that made with the organic acids. Seeing that phosphoric acid has been largely used, and appears to be highly valued for raising bread and pastry, and that it is recognized as an important medicinal constituent to the system, there is no reason why this article should not be used in this highly diluted form as the acid flavoring of lemonade and mineral water.

[In the United States, "Horsford's Acid Phosphate" has for some time been a regular adjunct to the mineral water counter of retail pharmacies.—Ed. Amer. Drug.]

APPARATUS FOR GENERATING OZONE.

Since india-rubber cannot be used in contact with ozone, and cork is likewise unsuitable, G. Krebs recommends that apparatus for generating ozone should always be constructed of glass exclusively.

Fig. 1 shows an apparatus for generating ozone by the electrolysis of water. To the closed end of the leg *b* of a U-tube *ab*, which may be raised and lowered on the stand, a glass tube *c* is fused which is made to dip into a short test-tube. The platinum strip in *b* is connected with the positive pole of a battery of at least three good Bunsen cells. Through *a*, enough diluted sulphuric acid (very cold) is poured to make the level of the contents a little higher than the platinum strips. After a few minutes, the decomposition of water will have continued long enough to plainly show the presence of ozone by iodide of potassium and starch.

Fig. 2 shows another apparatus in which permanganate of potassium and sulphuric acid are used. It is a glass cylinder, the bottom of which is of the same thickness as the sides. The cylinder is closed with a high, thin-walled, ground glass cap to which a curved delivery tube is attached. Sulphuric acid is first poured into the apparatus to the height of one or two centimeters, and upon it is sprinkled a small quantity of dry permanganate of potassium, at most two parts for every one part of the acid. If too much of the salt is used, or if the salt is first introduced and the acid poured on it, a violent explosion may take place shortly afterwards. If performed as above stated, no accident ever occurs.

Fig. 3 represents an apparatus in which binoxide of barium is employed in connection with sulphuric acid. Either the ordinary binoxide may be used or, better, the hydrated binoxide, such as is produced by dissolving the common binoxide in diluted hydrochloric acid, precipitating by means of baryta water, and drying. The cylinder is charged with a layer of binoxide, about 2 Cm. in depth, and the hollow funnel attachment then adjusted. The latter has a funnel fused into it, and this is filled with concentrated sulphuric acid, which is allowed slowly to flow upon the barium oxide. These forms of apparatus can be bought of Desaga, in Heidelberg.—*Wied. Ann.*, 22, 139.

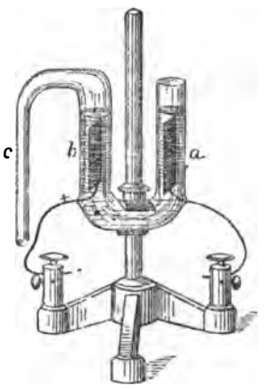


Fig. 1


Fig 2.


Fig. 3

Apparatus for generating Ozone.

Pill-Mass of Copaiba.

Wm. Kirchman sends a communication to the *Pharm. Zeitung* (Bunzlau), in which he reports having discovered a method for making copaiba pills which remain soluble and retain their proper consistence.

A quantity of the balsam is first made into an emulsion with the usual proportion of gum arabic, then a quantity of calcined magnesia amounting to $\frac{1}{16}$ of that of the balsam added, whereupon the mass will acquire the consistence of an ointment after about twelve hours; it will, however, not be sufficiently hard to form pills. If now a very small quantity of borax is added (which, as is well known, causes the coagulation of the gum), a beautiful pill-mass is produced, which leaves nothing to be desired. On taking some of this into the mouth, it is soon dissolved to an emulsion under the influence of the saliva and the bodily warmth. The mass keeps well; after a time, however, it requires to be kneaded in a warmed mortar before it can be formed in pills.

Note on Sulphurated Lime.*

THIS note is the result of a few experiments made to determine which of the processes that have been suggested or employed for the production of sulphurated lime is the best.

Process I. — One hundred parts of lime in fine powder was mixed with ninety parts of precipitated sulphur, the mixture was gently packed in an earthen crucible, and the lid luted on. The crucible was now heated for one hour in a charcoal fire at a low red heat, the heat being applied to the top first and gradually continued downward. The sulphurated lime was cooled and rubbed to a powder.

The resulting substance was brown in color, and had a faint peculiar odor, somewhat resembling sulphuretted hydrogen, but distinct from it. It contained about thirty per cent of sulphide of calcium.

This was estimated in the following way: 1.25 grains of sulphate of copper is dissolved in 50 C.c. of water. To this solution, kept acid with a little hydrochloric acid, the sulphurated lime is added, and the mixture is heated nearly to boiling. When all the sulphurated lime is decomposed, a little of the filtered liquid is tested with ammonia for copper. If the liquid becomes blue, the mixture is cooled, a little more of the sulphurated lime is added, and the process repeated as before, till all the copper has been precipitated from the solution. From the amount of the sulphurated lime which has been found necessary to decompose 1.25 grains of sulphate of copper, the percentage of sulphide of calcium may be easily calculated.

Process II.—Sulphuretted hydrogen was passed through dry, slaked lime for eighteen hours. The resulting substance was of a light green color and had an unpleasant odor similar to the odor of that prepared by Process I., but more resembling that of sulphuretted hydrogen. It contained 5.7 per cent of calcium sulphide.

Process III.—Sulphuretted hydrogen was passed through slaked lime, made into a paste with water, for eighteen hours. The color of the resulting body was dark green, but on heating to redness changed to a light pink color. The smell was similar to the smell of that prepared by process I., but not so strong. On adding acid, sulphurous vapors were given off, indicating the presence of a sulphite. It contained six per cent of calcium sulphide.

Process IV.—Seven parts of finely powdered sulphate of calcium was thoroughly mixed with one part of wood charcoal, also finely powdered, and the mixture heated in an earthen crucible at a red heat till the black color had disappeared. Allowed to cool the resulting sulphurated lime was of a light pink color, similar to the color of that prepared by process III., and had a smell like that of the variety prepared by process I., but stronger. It contained fifty-eight per cent of calcium sulphide.

Reviewing these four processes and their results, the second and third may be at once condemned an account of the greater difficulty of production and the small proportion of calcium sulphide in the sulphurated lime that results. Of the two other processes, No. 4 is the better, for not only do the directions with regard to exclusion of air and mode of heating render the first process more difficult to perform, but the sulphurated lime which results does not contain much more than half the calcium sulphide contained in that produced by the last process, nor is it so elegant a preparation.

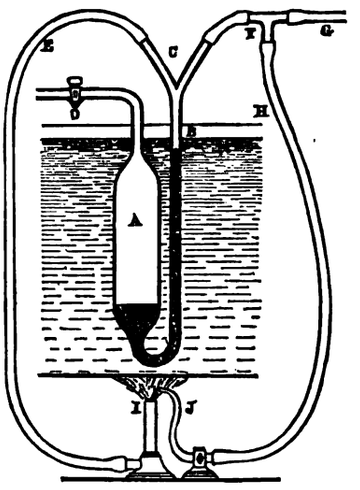
That prepared by the action of charcoal and sulphate of calcium will therefore best satisfy producer, prescriber, and consumer.

* Paper read by Mr. T. S. Dymond at the late British Pharm. Conference.—After *Pharm. Journ.*

[One would infer from the above paper that the writer considers the calcium sulphide to be the active ingredient in the preparation known as sulphurated lime, and that he estimates the therapeutic value to be in proportion to its presence. The editor of this journal has had some experience in the use of both sulphurated lime and calcium sulphide, and he has not found the latter to be therapeutically as active as the former. Thus far the product of the first process is the one upon which most therapeutic experience has been gained. It is the process accepted by homœopathic chemists and is the one adopted by the committee of Revis. of the U. S. P. of 1880. We shall hesitate in accepting Mr. Dymond's opinion of the merits of the products of the fourth-mentioned process until we have the clinical experience of physicians who are competent to judge of its value.—ED. AM. DRUGGIST.]

MERCURIAL HEAT REGULATOR.

N. A. RUDOLPH, M.D., suggests a form of heat regulator,* consisting of an air thermometer so constructed that the rise of mercury in the limb, *B*, will obstruct the flow of gas through its bifurcated extremity. By providing an accurately-fitting stop-cock, *D*, the tension of the air within the chamber, *A*, may be regulated so as to adjust the height of the mercury in the tube *B;* as, for example, when the mercury has been forced high up in *B*, a relatively slight increase in temperature will expand the air in *A* and force the column of mercury to the point of cut-off. In practice, the adjustment is effected by placing the instrument in a medium of the required temperature, and forcing air through the open stop-cock into *A*, until the mercury rises in *B* nearly to the bifurcation, when the stop-cock is closed and the escape of air from *A* prevented.



The pressure of gas employed must be quite low: otherwise, as the mercury rises above the bifurcation, it may be blown out. A simple gas-pressure regulator may, therefore, be useful.

As the flame is extinguished when the mercury rises above the point of bifurcation of the tube, a supplementary burner *J*, with a minute opening, is provided and is supplied with gas from a side-branch on the main pipe at *F*. This gives a flame too small to affect the temperature of the water-bath or air chamber, but sufficient to relight the burner *I* when the flow of gas is again established.

The instrument must be protected from touching the bottom of the retaining vessel, and must be kept vertical. It should be accompanied by a thermometer to verify its adjustment.

* *Sci. Amer. Suppl.*, Oct. 4th, 1884, from *Journ. of Frank. Inst.*

It is also well to cover each of the exposed surfaces of mercury with a drop or two of glycerin to prevent oxidation.

Preparation of Hydrobromic Acid from Zinc Bromide.

IN the *Journ. of the Soc. of Chem. Ind.* (1884, 20), Ad. Sommer describes four different general methods of preparing hydrobromic acid, namely:

1. By direct union of bromine and hydrogen.
2. By decomposition of hydrogen compounds, such as hydrogen sulphide (H_2S), hydriodic acid (HI), ammonia (NH_3), or of oils through bromine.
3. By decomposing bromides of solid metalloids (particularly penta-bromide of phosphorus, PBr_5) through water.
4. By decomposing metallic bromides with acid.

Of the first three classes of methods only that by means of penta-bromide of phosphorus yields satisfactory results.

The author then proposes a new method coming under the head of the fourth class, namely by decomposing bromide of zinc ($ZnBr_2$) with sulphuric acid. The bromide of zinc is easily prepared by action upon metallic (granulated) zinc with bromine water containing an excess of bromine in suspension. The solution is drawn off and quickly concentrated so as to obtain the solid bromide of zinc. In order to obtain the definite hydrate of hydrobromic acid containing 5 molecules of water, the following mixture is distilled in a retort:

	Parts.
Bromide of Zinc	225
Sulphuric Acid (calc. as H_2SO_4)	196
Water, enough so as to amount, with the water accompanying the H_2SO_4, to	180

The molecular proportions are:

$ZnBr_2 + 2H_2SO_4 = ZnSO_4.H_2SO_4 +$
zinc bromide — sulph. acid — acid sulphate of zinc
$+ 2(HBr.5H_2O)$ hydrobromic acid

The product is freed from accompanying traces of sulphuric acid by adding a sufficient quantity of barium carbonate and then again distilled (boiling point 123° C.).

Fluoride of Quinine.

FLUORIDE of quinine has recently been recommended by Dr. Weddell, of Calcutta, in the treatment of enlarged spleen. He has investigated the action of fluoric acid and the fluorides, and has come to the conclusion that, in cases of chronically enlarged spleen, of malarial origin, the effects obtained are very striking. In very small doses, the fluorides have produced marked benefit in cases of rickets and other diseases characterized by malnutrition of the osseous system. Of the salts of fluoric acid, Dr. Weddell considers those of quinine or quinetum (*i. e.*, of the mixed cinchona alkaloids) to be the best.—*Brit. Med. Journ.*, and *Pharm. Journ.*

Saponimentum is a name given by Dieterich, at the suggestion of Hager, to a new form of embrocation, consisting of a spirituous solution of soap in combination with various other substances, such as tincture of arnica, balsam of Peru, etc. The name is a generic one, and its application will be understood by quoting one formula:

Saponimentum Arnicæ.

Stearin soap	0.05 Gms.
Alcohol	0.70 "
Tinct. Arnica (double)	0.25 "
Essent. oil of Arnica	5 drops.

Dissolve and filter.

SIMPLE LABORATORY APPARATUS.

EDWARD HART describes in the *Amer. Chem. Journ.* some simple forms of laboratory apparatus which may be made by those who do not possess special skill.

I. APPARATUS FOR FRACTIONAL DISTILLATION.

The apparatus has the form shown in the figure. The bent tube, before bending, should be at least 2 feet long, but may be of any length, with a corresponding number of bends (the greater the length the more perfect the separation), and an internal diameter of at least ⅛ inch. The principle is the familiar one of the "dephlegmator." The condensed portion here runs down and at each bend passes around the inside of the tube, the vapor passing upward through the ring of descending liquid. A comparison with a Le Bel and Henniger tube, with 4 bulbs, showed very little difference in the rate of separation. The apparatus is preferable to that of Le Bel and Henniger, by reason of its simplicity and small cost. It can be made by an amateur glass blower, while the former can be made only by a skilled workman.

FIG. 2.

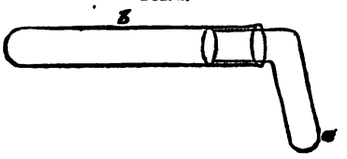


FIG. 1.

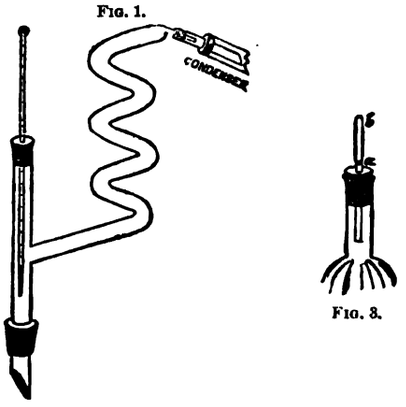


FIG. 3.

II. A RETORT AND RECEIVER FOR SMALL DISTILLATIONS.

It is oftentimes inconvenient to use a retort in making small distillations, chiefly because it takes considerable time to fit up a retort stand. For such small distillations as the preparation of chloro-chromic acid in testing for chlorine, the following arrangement is convenient: The retort tube, *a*, is made by bending a 6-inch test tube. If the tube is heated to redness, and blown into while bending, a neat and strong bend is easily made. In use, the receiver tube, *b*, is held in the hand, while the retort tube is placed above a small flame. For a retort tube made from a 4-inch test tube, a 6-inch test tube makes a receiver of the proper size. For a 6-inch retort tube, an 8-inch test tube is needed.

IIII. A VALVE FOR ALLOWING AIR AND VAPOR TO ESCAPE FROM A FLASK.

The valve shown has been in use for several years, and proves perfectly satisfactory.

The trouble with the old forms (in one of which a slit is made in the side of a rubber tube, and in the second a piece of rubber is pinned over a hole in cork, and this slipped over a tube leading from the flask) is, that however carefully they are made, they get out of order very soon, and become a nuisance. In the permanganate test, the liquid in the flask is rapidly heated as soon as the iron wire is introduced, and as soon as the wire is dissolved, boiled to expel all air, and the tube pushed down so that the opening, *a*, in the tube is inside the opening of the rubber cork, which prevents the air from flowing back into the flask as it cools. The tube is closed at *b*. The opening, *a*, is made either by filing cross-wise with a rat-tail file, or, better, by heating with a pointed flame and blowing an opening in the side of the tube.

Rhubarb in the Kuku-Nor.

THE *Pharmaceutische Zeitung* quotes from an Austrian writer some particulars of a visit to the rhubarb-growing district in the northern slopes of the Kuku-Nor mountains. The soil is described as consisting of layers of rich earth washed down from the higher regions, and the growth of the rhubarb plant as extending from the bottom of the valley up to the limits of the forests, an elevation of about 3,200 meters, and sometimes higher. Not only the Tangutians, but Chinese, from Lining-fu, are here occupied in the industry, the spring time and autumn being considered the most favorable times of the year for digging up the root, on the ground that the root juices are then more powerful. The plant frequently reaches a height of 3 meters or more and consists of a stem 3 or 4 centimetres thick, at the base of which are 3 to 10 dark-green, cordate, divided leaves. Above, the stem bears several branches, attaining ½ meter in length, and bearing groups of small white flowers. In this district, the rhubarb plant flowers in July, the seed ripens in August, and in September it is collected, at the same time as the root, by the Tangutians, who also cultivate the plants in the neighborhood of their tents. The root stock consists of a longish tuber to which are joined numerous long, slender adventitious roots. These latter are cut off during collection as useless; but the principal stock is dried in the sun and then transported to Lining-fu, the principal market of the drug. On the spot, the root is very cheap, enough being obtainable for a few copper coins to last a family a life-time; but transportation from Lining-fu to Pekin increases its cost twenty fold.—*Pharm. Journ.*

A new Method of Determining Nitrogen.

OF the various modern methods proposed for the determination of nitrogen, only that of Kjeldahl has been able to compete with and to excel in accuracy the old method of Will-Varrentrap. The new process yields not only more accurate results, but is more simple, consumes less time, and is applicable to liquids or solids. Besides, as the acid used in the reaction does not appear colored at the end, the process may be conducted even at night time. The following is a description of the method.

1.5 Gm. of the substance which must not contain over 10 per cent of nitrogen, is put into a flask of a capacity of 100 to 150 C.c., with a rather wide and short neck, and 20 C.c. of a mixture added, consisting of 16 C.c. of concentrated and 5 C.c. of fuming sulphuric acid. Afterwards, 2 gm. of anhydrous phosphoric acid are added, and the flask heated on a sand-bath, at first gently, then more strongly, and finally at a temperature at which the acids boil. During the commencement of heating, and as long as any sulphurous acid vapor is given off, the flask must be inclined sideways, so that the spirtings may strike the side of the flask and flow back.

After a certain time, which is about 30 minutes for sulphate of ammonium, 1 hour for guano, 2 to 4 hours for albuminoids, 5 hours for blood, etc., the contents assume a light color, and the largest portion of the nitrogenized substances is converted into sulphate of ammonium. The still remaining, undecomposed portion is then also converted into sulphate of ammonium by adding successive small portions of powdered permanganate of potassium to the hot contents of the flask previously taken from the fire. When the liquid assumes a green color, the operation is terminated.

The contents are now allowed to become cold, then washed into another flask of the capacity of 500–600 C.c., with very short neck, and diluted so as to measure not more than 300 C.c. Next 3 to 5 Gm. of granulated zinc are put in, to prevent bumping, an excess of solution of soda is added, and the flask rapidly connected with a cooler, care being taken that none of the contents of the flask can be squirted over into the tube of the cooler. A half an hour's boiling, with full flame, is sufficient to drive all the ammonia into the receiver (best, an Erlenmeyer flask) previously connected with the cooler, and charged with standard hydrochloric or sulphuric acid.

With proper arrangement, one person may execute 24 to 36 determinations in one day, with this process.—*Pharm. Centralh.* and *Ph. Post.*

[The above process is, of course, inapplicable in such cases where the nitrogen is present (or is eliminated by acids), in form of one of its oxides. A nitrite, for instance, cannot be assayed by it.—ED. A. D.]

New Test for Chlorates in Presence of Chlorides or Nitrates.

MR. FOURMONT has based a new test for detecting chlorates upon the fact that a green color is produced when sulphuric acid is poured upon copper in the presence of the above salt. If a nitrate, in place of chlorate, is present, nitrous acid fumes are given off, and the solution acquires a blue color from the presence of sulphate of copper.

a. Chlorate alone present. If this salt be treated with sulphuric acid and copper, hydrochloric acid is eliminated, and chloride of copper goes into solution which acquires a green color.

Before applying the test, it is, of course, necessary to insure the absence of salts which precipitate silver (such as chlorides, etc.).

b. Chlorates and Nitrates present. The same reaction takes place at first, namely, hydrochloric acid is first eliminated, and a green solution results. But soon afterwards reddish fumes of nitrous acid, etc., are given off, and the solution turns blue. Two minutes suffice to complete the reaction.

c. Chlorates and Chlorides present. The chloride having first been found by means of nitrate of silver, the above reaction may be performed at once, even without first separating the chloride of silver by filtration.

d. Chlorates, Chlorides, and Nitrates present. On adding the copper and sulphuric acid, all three salts are decomposed and hypochloric, hydrochloric, and nitric acid are at the same time disengaged. The last two acids together produce aqua regia which, with the copper, produces only chloride, coloring the solution green. If a hydrochloric acid (or a chloride) has been previously found, the mixture contains both a chloride and a chlorate. On heating now for one or two minutes, the green color disappears and a blue one takes its place. Hence we may conclude that all three salts have been present. Yet the presence of a chloride and a nitrate alone (without a chlorate) may produce the same reaction in the end. For this reason it is safer to remove the chloride first by nitrate of silver, and then to test for the other two salts.—*Journ. de Pharm.* x. (5), (1884), 96.

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 11. WHOLE No. 125

FRED'K A. CASTLE, M.D., - EDITOR.
CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY
WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

NOVEMBER, 1884.

SUBSCRIPTION PRICE per year, - - - - $1.00
SINGLE COPIES, - - - - - - - - - - - 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & CO., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

PREVIOUS to the receipt of Mr. Bendiner's admirable paper on the æsthetic management of the druggist's window, we had already in course of preparation a series of papers on this and allied topics, which we hope will prove of interest to our readers. There is no doubt that this subject has become one of importance, not only in localities where the pressure of competition is most felt, but to some extent, as well, in less populous neighborhoods. The style of decoration advocated by Mr. Bendiner is admirably adapted for the windows of such establishments as depend largely upon a prescription business, or which cater to the pharmaceutical wants of a class of customers who best appreciate the professional aspects of a pharmacist's calling, but it is safe to say that the majority of the thirty-thousand druggists of this country would apprehend some loss of patronage were they to confine their window display to the æsthetic limits prescribed by him. In view of the customs of trade, it will doubtless be some time before the windows of even the most ultra pharmacists will be reduced to such simple and typical forms. Meanwhile druggists will feel the need for utilizing their show-windows in such manner as not only to impress the passer-by with the good taste and professional character of the proprietor, but also to inform him of the general nature of the wares to be found within the establishment.

The consideration of the subject need not end with the arrangement of the window, but may well extend to the interior. Large sums of money have already been expended in our leading cities upon elaborate fittings of well-known pharmacies. As an example of this we refer to the illustrations in our issue for August of last year. It is not always requisite, however, that the cost should be great to secure an artistic and pleasing effect, for a satisfactory result may often be obtained with simple materials when the design is suitable and harmonious, and the workmanship good. How far we shall be able to accomplish our purpose in *suggesting* means to be employed, remains to be proven, but we shall endeavor to furnish the readers of our forthcoming volume with a variety of hints, which we hope will be of value to them.

Anæsthesia by the Local Use of Hydrochlorate of Cocaine.

IN a letter from Dr. Henry D. Noyes, of New York, published in the *Medical Record* of October 11th, an account is given of experiments made before the Ophthalmological Congress in Heidelberg, to illustrate the power of a two-per-cent solution of hydrochlorate of cocaine to produce local anæsthesia. A medical student of Vienna, named Koller, was led to make trials of the salt for this purpose, on account of the effect he had witnessed when cocaine in solution was pencilled upon the pharynx to render it less susceptible in laryngoscopic examination. A vial of the solution was given by Mr. Koller to Dr. Brettauer, of Trieste, to be used in the presence of the Congress, and several experiments were made which showed that when two drops of the liquid were placed upon the surface of a normal cornea, and the application repeated after an interval of ten minutes, at the end of ten minutes more the sensibility of the cornea was so far diminished that it could be pressed with a probe; the cornea and surface of the eye-ball and eye-lids adjoining could be rubbed; a speculum could be inserted and the lids widely separated, and the conjunctiva could even be seized with fixation forceps, and the eye moved in various directions without causing the patient notable discomfort.

Since the publication of Dr. Noyes' letter, several reports have appeared in the *Medical Record* and *New York Medical Journal* which seem to show that this discovery of the anæsthetic power of the drug is of the greatest importance. Operations have been made upon the eye which formerly demanded the inhalation of chloroform or ether, but which were painless, owing to the local effect of a two-per-cent solution of hydrochlorate of cocaine. Dr. H. Knapp reports a number of experiments which show, not only the mydriatic effect of the drug (which we have already referred to on p. 113), but also confirm the statements before made that the use of a two or four-per-cent solution in the eye produces neither pain nor discomfort; causes, on the contrary, loss of sensibility to pain, commencing within three minutes, increasing from ten to twenty minutes, and disappearing within a half-hour.

The eye is not the only region which is thus affected; for, according to Dr. Knapp's experiments, the ear, mouth, tongue, pharynx, nose, larynx, trachea, urethra, and rectum are similarly influenced in varying degrees.

There is reason to believe that this discovery will prove to be one of the greatest importance.

THE "New York and Brooklyn Formulary" of unofficinal preparations is about to receive a revision, and is to be considerably enlarged preparatory to bringing it to the direct attention of the medical profession in the two cities. In order to enable the Committee to meet the wants of physicians, all pharmacists of New York, Brooklyn, and the vicinity, or any others who may have used the formulas contained in the work, are requested: 1. To communicate any criticisms respecting the formulas or working processes given; 2. To inform the Committee of the names of such unofficinal preparations as, in their judgment, should be contained in the book.

Information of the character mentioned is of the greatest importance to the Committee, and will be thankfully received. Working formulas for the preparations named will also be very acceptable. Communications may be addressed to the Formula Committee at the College of Pharmacy, 209 and 211 East 23d street.

ON advertising page 59, last line, in the report of the meeting of the Illinois Pharmaceutical Association, Sunday should have been Tuesday. It is not often that we have any occasion to correct an error of the printer, but this one demands attention for reasons that are quite obvious.

Menthol Pencils.—The *Medical Record* says that these pencils or cones, whose therapeutic value is very limited at best, have become so popular that great adulterations or substitutions are now practised. The ordinary oil of peppermint is probably substituted for the menthol, in large part, at least. [The editor of the journal does not mention the source of this information, and we are inclined to think that he is misinformed.—ED. AMER. DRUG.]

Notes on Drugs and Chemicals.*

Agaricin.—This new remedy, recently recommended by English physicians in cases of intense sweating, does not meet with success. Recent reports of German clinicists show that it cannot compete with atropine and similar substances.

Alcohol.—New York exported from Jan. 1st to July 1st, 1884, 2,244,598 gallons against 1,573,482 gallons during the same period of 1883. Of the above quantities there were sent:

	In 1884.	In 1883.
To France	801,622	346,785
" Germany	451,384	4,615
" Italy	30,469	301,644
" Spain	149,321	373,947

Antipyrin (or *oxydimethylchinizine*)—first prepared by Dr. Knorr, of Erlangen, appears to push its antipyretic predecessor, *kairine*, somewhat into the back-ground. Its chief advantages are said to be its less disagreeable taste and greater efficiency. A great future is prophesied for this remedy.

Araroba has been supplied in large quantities from Brazil. On the effect of air and light upon its peculiar constituent and the probable percentage of chrysophanic acid, a competent authority will shortly make a report.

Angostura Bark is in increased demand for bitters, though many of these go by the name of Angostura Bitters, when they contain none of this bark at all.

Azolitmin.—The pure coloring matter of litmus, freed from the brown body accompanying it in litmus, is highly to be recommended for the preparation of the tincture or of very delicate test-paper, in spite of its high price. For this purpose the coloring matter is best dissolved in water containing a minute quantity of soda, and the solution cautiously brought to the proper tint by means of oxalic acid.

Balsam of Peru.—The low price ruling at the beginning of this year fluctuated but slightly since then, although unfavorable reports on this year's output at San Salvador reached the market. On the quantity of balsam exported from Oct. 1st, 1882, to Sept. 30th, 1883, the following statistics in (Spanish pounds) are sent from Santa Anna:

Exported from: / to	*Acajutla*	*La Libertad*	*Total*
England	6,915	6,825	13,740
Germany	10,960	8,006	18,966
France†	11,656	8,809	20,465
U. S.	1,606	2,391	3,997
Belgium	460	—	460
Italy	—	395	395
Peru	—	194	194
Panama	69	20	89
Total	31,666	26,640	58,306

The total annual yield during the past 8 years had been in Spanish pounds:

1883	58,306	1879	32,414
1882	54,277	1878	32,094
1881	42,220	1877	57,937
1880	33,725	1876	56,402

It is reported that the balsam trees have been severely taxed during 1882 and 1883, and that they need rest; at the same time many trees are reported killed by the cold north-winds at the end of 1883 and beginning of 1884; hence a further decline in price is not to be expected.

The test prescribed by the German Pharm. (with benzin and nitric acid), is now scarcely recognized as authoritative. [See p. 215 in this issue.—ED. AM. DRUG.]

Carbolic Acid.—The demand for this article, both in liquid and in crystals, has been extraordinary during the summer months in consequence of the advent of cholera in Southern France.

Carnauba Wax is being shipped in large quantities. It being the hardest vegetable wax known, it has found employment for many purposes, and may now be had in a bleached state.

Cassia Bark.—The large stocks of this article in London (on August 1st, 1884, about 124,560 chests, against 106,888 in 1883) do not permit us to expect higher prices until the rate of production is diminished. The price has been but slightly and only for a short time influenced by the reports of the warlike proceedings between France and China.

Cinchona.—Though we have been accustomed of late years, when speaking of this article, to make reports of excessive speculations, unexpected fluctuations, and private coalition, yet at no time has a reverse been more sudden than that produced by the failure of the large quinine factory of Milan, in August, and, a few days later, that of the largest bark dealers in London. For several days the leading markets in London and New York were highly excited, and a complete panic was threatened. The situation was, indeed, very precarious, for the Milan factory had accumulated stocks of much over 20,000 kilos of quinine, and the London bark dealer about 40,000 bales of cuprea barks. As will be remembered, a very decided fall in the price of quinine took place after the collapse (Jan. 21st) of the league of the quinine manufacturers, while the price of the bark took a decided rise. It would seem as if the Milan factory had based upon this a fresh speculation in order to recover the large concealed losses of former similar operations; it was attempted to regain the favor of purchasers by cheap offers, and when it was expected that the usual summer's supply would soon be called for, a large lot of bark—it is said 18,000 bales—were withdrawn from market in order to screw up the price of bark again. Even during May and June the attempt to inflate the artificial price of bark was still successful, but during July the market became unsteady, each sale soon brought lower prices, and after the catastrophe had taken place, Ceylon barks could not be sold for more than 5 to 6 pence per unit [1% quinine].

The capital of the Milan factory (six millions of francs) is said to have been lost during a few years, which fact is well calculated to permit a conclusion to be drawn regarding the unsound state of the bark and quinine market. It is impossible at present to form any definite judgment of the immediate future. It appears that certain powerful banking institutions find it to their interest not to throw the large stocks of quinine suddenly upon the market, and unless an advance is forced by a purchase and withdrawal from market of any offered lots of bark or quinine, we may hope that we are at the commencement of a period of stable and moderate prices. The present price of quinine has occurred twice before, namely, about or shortly after 1850, and in 1870. It was owing to the long-continued revolution in Colombia and the constantly diminishing supplies from this country, that the price for the unit [1%] of quinine rose, in 1879, to 1s. 6d. or even 2s., that is, to four times its present value. Since then, the supply countries have been multiplied and the amount of bark shipped, for instance, from Ceylon alone, is larger now than that ever exported in one year from South America.

EXPORTS FROM CEYLON.	LBS.
Oct. 1, 1883, to July 17, 1884,	8,313,062
Oct. 1, 1882, " July 17, 1883,	5,429,474
Oct. 1, 1881, " July 17, 1882,	1,972,270
Oct. 1, 1880, " July 17, 1881,	918,030

Coca leaves.—Handsome green leaves are still quite rare. Large amounts have been laid down in Hamburg, but nearly all are of medium quality only.

Cocaine.—This alkaloid has been used more frequently of late; it is reported to have been used, internally, with good success in cases of great exhaustion, after insolation, loss of blood, or diarrhœa.

Cod-Liver Oil.—Gehe & Co. indorse the test for the genuineness of cod-liver oil proposed by Kremal [see page 217 of this number], by means of nitric acid of the spec. gr. 1.500. They warn, however, against the use of any stronger acid, since this will cause a violent foaming and will color the residue brown, even though the oil be perfectly pure.

Coto bark exists in the market at present only in the variety "para." True coto bark is entirely exhausted and new supplies are not expected for some time. The two barks can scarcely be distinguished pharmacognostically; only by means of the glucoside contained in the bark are they distinguishable. Cotoin melts at 124° C., and is slowly colored blood-red by cold nitric acid, quickly so by the hot acid; paracotoin melts at 152° C., and is only rendered yellow by the acid.

Elaterin.—The British Pharmacopœia demands that elaterium shall contain at least 25% of elaterin. Gehe & Co. have *never* been able to observe such a high percentage, 12 to 15 per cent being as high as they could obtain.

Ergot.—Last year's collection in Russia had been reported to be quite below the average, but the quantities brought to market showed the report to be unfounded, and the value of the article was much depressed. Offers of this year's collection have not yet been made, which would indicate a probable deficiency of yield, and an eventual advance.

Ergotinin.—The solution of the citrate of Gehe & Co.'s alkaloid has found much favor with practitioners. One of its advantages is that it does not produce abscesses. The dose has heretofore been stated to be 0.2 to 0.7 cm. (3 to 11 minims) of a solution of 1 in 1,000; but it seems that it could be somewhat increased.

Gallic acid.—One sample offered to Gehe & Co. turned out to contain 50% of sulphate of aluminium.

Guarana is now completely out of the market since the last small stocks have been bought up at high prices. Brazil itself consumes so much of the article that none can be obtained at present for export.

Helenin, or the camphor of the oil obtained from elecampane (which latter was formerly in high repute), has been used with apparent success in old catarrhs and incipient phthisis. It is given in doses of 0.01 Gm. (about ⅙ grain).

Hydrochinon (*hydroquinone*, or *paradihydroxyl-benzol*, see NEW REM., 1880, 269), though high in price, has nevertheless been used in considerable quantity, in comparison with other antipyretics. Its dose is stated to be 1 Gm., and this quantity is said to produce a remarkably prompt reduction of temperature and pulse.

Insect Powder.—The flowers of Chrysanthemum have been scarcer during the past year, and an increase of price is expected. Wild, unexpanded flowers are particularly scarce, and their price, in Trieste, has advanced from 110 to 120 florins.

Jalap.—The attempts to cultivate jalap have met with moderate success in the botanic garden at Ceylon. Nevertheless, the experimental station at Hakgala does not appear to have been situated high enough, since still better results have been obtained in the Nilgiris at an altitude of 7,000 feet.

Jequirity Seeds.—The use of this drug in ophthalmic practice has greatly diminished since the warning given by Dr. Vossius, who declares the employment of the seed as dangerous to vision, and therefore unpermissible. In transatlantic [meaning American] countries, the seeds are now being

* From the Handelsbericht of Gehe & Co., Dresden, for September, 1884.

† Half of this was reshipped to Hamburg.

used also in the treatment of lupus or other skin diseases.

Kairine is much less asked for than formerly, no doubt partly in consequence of its very disagreeable taste. An Italian practitioner has tried the remedy hypodermically, and states that he has obtained excellent results.

Lycopodium has shown an upward tendency, since the stocks from the small harvest of last year began to dwindle. Large orders arriving from the U. S. since June, chiefly for pyrotechnic uses during the presidential campaign, raised the price 50 per cent, though the cessation of the demand has again brought about a decline.

Naphthalin.—Besides its extensive use for destroying insects, this substance is now also used internally, and is reported to have been very serviceable in catarrh of the bladder.

Oil of Mustard (essential) has ruled very low, so that it scarcely pays to prepare the genuine oil from Dutch mustard seed of this year's harvest.

Osmic Acid, used externally for destroying certain morbid growths, and internally in epilepsy, has been in increased demand, though the high price still deters many from its use.

Papayotin, as an antidiphtheric, has maintained its reputation. Gehe & Co. have induced their correspondents in South America to adopt the following process for the preparation of a crude papayotin, which is further purified on its arrival in Europe by means of bone-black: The fresh, milky juice of the fruit of *Carica Papaya* is diluted with water, and, when the resinous particles have separated, the liquid is filtered; or the liquid is mixed with just enough alcohol to produce a slight precipitation of papayotin, which carries down with it all impurities. The clear liquid is now poured into about seven times its volume of 90% alcohol, the resulting precipitate strongly expressed on muslin and dried at a gentle heat. If the aqueous solution must be kept so long as to endanger its keeping qualities, it should be preserved by the addition of a little chloroform. [See also p. 205.]

Piscidia Erythrina.—The failures reported in regard to this new narcotic, are said to be due to the fact that the bark of the stem has been often employed in place of the bark of the root.

Quinine Sulphate.—The April report mentioned the collapse of the coalition existing among the manufactures which resulted in a reduction of the price of quinine from 250 marks to 160 marks per kilo (or about $1.67 to $1.07 per oz.). The market thereby became more quiet and this was not even much disturbed by the burning of Powers and Weightman's factory in Philadelphia, since the Milan factory immediately undertook to fill its orders at the cost of production. The statistical position of the bark-market had likewise become somewhat improved: arrivals had diminished and stock had decreased, on July 1st, by about 30,000 bales, compared with January 1st. Nevertheless no real confidence was established, and a sort of uneasiness prevailed which was partly engendered by the knowledge that there were still existing considerable stocks of quinine and bark dating from the preceding period of speculation, which the owners did not like to part with.

It was probably the continued small demand for quinine which prevented the speculators from taking active steps. Hence they restricted themselves to depressing the price still further, in order to prepare the market for an approaching new *coup*. But the diminution of value thus produced (amounting to millions) in their own large stocks produced at much higher prices, hastened the catastrophe, which could be only a question of time after the collapse of the combination, at least for *some* of the participants. In consequence of several banking houses refusing further credit, large quantities of quinine (21,000 kilos) having already been hypothecated, the game was finally lost. The first to collapse was the Milan factory, the largest and most renowned in the world, and as a consequence the largest dealers of bark in London went under. [Private information received by us show still other causes, which afford a sad picture of commercial recklessness, eagerness to retrieve losses at any price, resulting unscrupulousness in the means selected to recover lost ground, and, finally, downright dishonesty. It is best to be charitable in this case, and to throw the mantle of silence upon the whole business, although the sad story is well known among those who have a chance to look below the surface.—ED. AM. DRUGG.]

For the present it is not certain what permanent effect, if any, these occurrences will have upon the quinine market. At first the latter was disorganized, because it was feared that the large quantities of quinine still held as collateral by the bankers, as well as the large stocks of bark, would at once be thrown open for public sale, which would undoubtedly have completely upset the market. It was, however, soon observed that the creditors endeavored to hold the market steady, in order to secure the highest possible prices for the hypothecated quinine. In the beginning, only a portion, consisting of 120,000 oz., was put up at auction, which was sold at comparatively fair prices, mostly for account of the U. S., and it is expected that the remainder will be absorbed in the same manner, since the U. S. are largely dependent upon imported stock, at least until the Philadelphia factory is rebuilt, which cannot be before about February of next year. All of these circumstances have contributed to improve the situation to a certain extent, and at present it would seem as if the market became steady again.

Salicylic Acid is also again in increased demand. Two new patents for its preparation have been taken out, one of which claims the use of carbon oxychloride in place of carbonic acid gas, while the other constitutes an important improvement of Kolbe's original process, permitting twice the quantity of salicylic acid to be manufactured from the same amount of materials as heretofore. This latter patent has been acquired by the present owners of Kolbe's patent. Both patents are based upon investigations and discoveries made in the laboratory of the polytechnic school at Dresden, in the course of studies on certain hitherto not well-understood reactions occurring in Kolbe's process.

Santonin.—The manufacture of this glucoside from so-called Levant wormseed has successively been transferred from interior manufacturing towns in Europe to sea-coast places, because the carriage by rail in the case of such a cheap, crude drug was found too heavy a tax. Afterwards a factory established in Orenburg, nearer to the source of production of the drug, inaugurated the period when the manufacture of santonin will be entirely transferred to the East, and still more recently an immense factory has been built at Tashkent (in Turkestan), with Russian capital, which being situated in the midst of Kirghis steppes where the drug grows, will have still better opportunities for monopolizing the trade. The machines for the factory have been made in Hamburg, and are intended to be put up ready for work during the fall of this year. [See p. 204.]

Sodium Salicylate.—The consumption of this important remedy, which is called by an Italian physician, quite appropriately, "the quinine of the poor" has again increased considerably. Of late, it appears to be used also in the arts to some extent.

Tjen Tjan Gelatin.—This vegetable gelatin, which is much in demand for sizing fabrics and in confectionery, is the very best medium for the artificial cultivation of bacteria, being much preferable to animal gelatin.

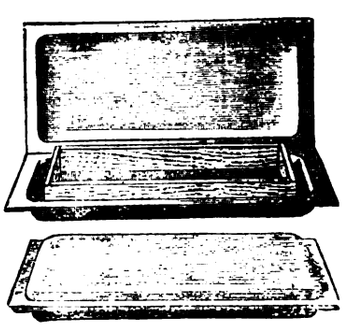
Winter's Bark is much in demand, and Gehe & Co. shortly expect an invoice of the true bark (from Drynn's Winter).

Ylang Ylang Oil has become very scarce and dear, owing to storms in Manilla which have interfered with the distillation.

Solution of Subacetate of Lead as a Test for Cotton-Seed Oil.

MR. S. S. BRADFORD* says that, after an experience of over ten years in testing animal and vegetable oils, he is convinced of the value of solution of subacetate of lead as a test for the presence of cotton-seed oil. When these two are mixed, a red color is produced which is peculiar to this oil and will indicate its presence in olive or cod-liver oil, so that it will serve as a reliable test for its presence as an adulterant in them.

Moreover, a mixture of solution of subacetate of lead with cod-liver oil causes saponification *at once* when shaken in the cold. When cotton-seed or any other oil is present, this saponification will not take place, no matter how long the mixture is allowed to stand, or how well it is shaken.



POSTAL BOX.

THE illustrations show a convenient package for mailing small articles, which is made of two pieces of straw board, moulded, by immersion in hot water and pressure, into a dish-like form. Boxes similar to these have been in use in this country for some time; but a German modification, shown in the upper figure, consists in a light framework of wood which serves to protect still further the contents. The edges of the box, if need be, can readily be fastened together with strips of adhesive paper or muslin.

What Becomes of Kairine in the Organism?

THIS question has been studied by Mering by careful analysis of the urine of patients who had received 3 to 4 Gm. of kairine daily, and he ascertained that kairine enters into a combination with sulphuric acid in the organism, being eliminated as kairine sulphate, in the same manner as phenol is discharged in the form of phenol sulphate.

The whole of the kairine, however, cannot be thus accounted for; a portion is probably further oxidized, since the kairine-urine frequently has a yellowish-green color, and becomes darker on exposure to air. After large doses, such urine also turns polarized light to the left, and reacts with Fehling's solution.—*Chem. Centralbl.*

* *Amer. Journ. of Pharm.*

Notes on Some Essential Oils.

MR. JOHN WILLIAMS, in a paper read before the British Pharmaceutical Conference, says that, having occasion to prepare some anhydrous and colorless essential oils for optical purposes, he observed some curious facts of interest to pharmacists. The samples were obtained from a most respectable and reliable source as of good commercial quality, and could be taken as fair averages of the best oils usually found in commerce. He assumed, also, that they were quite free from anything in the shape of adulteration.

Under ordinary circumstances, essential oils are distilled with the aid of water, or in a current of steam; but as the object was to obtain anhydrous oils, it was evident that such a process could not be adopted. On the other hand, when essential oils are distilled over a naked gas flame or other similar source of heat, there is great risk, indeed almost a certainty, of over-heating, and of the product consequently becoming contaminated with empyreumatic matter.

This difficulty was overcome in a very simple manner by employing a bath of fusible metal, and thus avoiding the possibility of the oil becoming overheated at any point. The fusible alloy employed was composed of bismuth, cadmium, tin, and lead. It melts at 140° F., or far below the boiling point of water. Is is true it is a rather expensive material when compared with ordinary solder which is generally used for this purpose, but it presents the great advantage that there is little or no danger of the retort cracking when it is plunged into the melted bath, whereas with solder this danger is considerable. The alloy was contained in an iron basin into which the retort could be lowered or raised at will. No Liebig's condenser is required or advisable, for so high is the temporature at which these essential oils boil, ranging from 160° to 240° C. (320° F., 464° F.), and so easily condensable and so little dispersive are their vapors, that no water is required for their condensation. In fact the end of the retort simply requires to be inserted for an inch or two inside a somewhat larger tube, two or three feet in length; and with a flask at the end to act as receiver, the apparatus is complete. No cork or luting is required; simply a little soft paper wrapped round the joint will be found sufficient to keep in the vapor of the oil.

When essential oils of the kind experimented upon are heated in the manner described, there first comes over a mixture of aqueous vapor and oil. This oil boils at a comparatively low temperature, and although it is of a pleasant flavor it can be easily distinguished from the true oil. It, however, does not occur in large quantity in any oil examined; the utmost would be from ½ oz. to 1 oz., from a pound of natural oil.

After a time, the neck of the retort is seen to clear from streaks and striæ, and the boiling point of the oil rises somewhat. It is then necessary to change the receiver, when a considerable quantity of the anhydrous oil distils over, generally amounting to quite one-half, frequently more, of the oil operated upon. In fact, as a rule this portion is by far the largest fraction. The boiling point is at no time constant or steady, but is continually, although slowly, rising throughout the distillation. After a time the temperature is observed to rise more rapidly, when the receiver has to be again changed, as a quantity (comparatively small, it is true) of high boiling and colored oil now passed over, the boiling point rising in many cases to 240° C. or upwards; on one occasion nearly 300° C. was reached, but that was not with one of the oils now referred to.

It is not advisable to continue to apply heat beyond the point at which the high boiling oil comes over very slowly and in small quantity, for if that be done, white, smoke-like clouds form in the retort, consisting of very curious and interesting resinous or oleoresinous bodies; possibly they have not been produced before in a state in which they could be examined, as by the ordinary mode of manipulation they would either be left behind in the water or be so changed by direct heat that their real nature could not be distinguished. The quantity of resinous matter produced varies very much with different oils, but as a rule it is much greater than was anticipated.

The anhydrous essential oils, to produce which was the main object in view, as obtained in the way described, were slightly colored, or became so after being kept a few days. To obtain them in a colorless condition, it was found necessary to redistil them a second time, when, with the exception of the geranium oil, which still came over slightly colored, the whole were obtained in a perfectly colorless state. Upon the second redistillation of the anhydrous oils, a little aqueous oil came over at first, proving that the oils obtained in the first redistillation were not quite anhydrous. A little resinous residue was left in the retort, but the amount was very small in comparison to that remaining after the first redistillation. This residue no doubt was contained in its present state in the original oil, and was not a product of decomposition.

Oil of orange yielded a large quantity of pure anhydrous oil, but little of higher boiling point, and a brown oily residue not so offensive as some of the others.

Lemon oil yielded a large quantity of anhydrous oil. The residue was dark-brown and solid, but not offensive in smell.

Oil of bergamot yielded a large quantity of pure oil. The high boiling oil was colored, and not pleasant. The residue was very dark-colored, but liquid, and very offensive in smell.

Oil of origanum yielded a large quantity of pure oil. The residual oil was very dark-colored, more liquid than the bergamot, but not so offensive in smell.

Geranium oil turned out very badly. The pure anhydrous oil was comparatively small in quantity and still colored. The high boiling oil was in small quantity and not nice. The residual oil amounted to quite one-half the original oil; it was very dark-colored and very offensive.

The original *oil of lavender* was of American origin. The amount of pure anhydrous oil obtained was smaller than from some of the other oils. The high boiling oil was very much colored and not of pleasant flavor. The residual matter was nearly black, of the consistence of treacle and very offensive.

Oil of peppermint was also American. It yielded about the same proportion of pure anhydrous oil as the oil of lavender. The high boiling oil was still distinctly peppermint, but coarse in flavor. The residual oil was light-brown and thick; it was not so offensive as some of the other residues, but was very inferior to ordinary oil of peppermint in flavor.

With respect to the pure anhydrous oils, there can be no doubt that a great improvement had taken place in their flavor. They will perhaps strike most persons as not being so strong as the original oils, but that is due to their having been deprived of the coarse, though probably powerful smell of the high-boiling oils and the residual matter. In fact, when the residual oleoresins are examined, it will be quite understood how the flavor of the various oils must be improved by the removal of such crude and, in many cases, really offensive matter.

At present it is not known how long these essential anhydrous oils will keep, that is, how long they will retain their superior qualities if they have any, or in what time they will again become oxidized and converted back into the state of the original oils. It is *likely* that anhydrous oils will keep for almost an indefinite time, and that the oxidation and change of these bodies is due to the presence of small traces of water.

Note on China Bicolorata.*

THIS bark comes form Tecamez or Atacamez, which lies west of Harra on the western declivity of the Catochaca. in Ecuador, where it was discovered in 1793 by Dr. D. Brown. It was recommended as a useful tonic by Dr. Bresa, of Padua, in 1824. Authorities on cinchona barks have referred it to a *Cinchona* or *Exostemma*, to *Henostemum* or *Pinkneya*. There is a greater probability that it is a *Remijia*.

Dr. A. Vogel has pointed out that the microscopical structure of the bark closely resembles that of *Remijia pedunculata*, or cuprea bark. Humbolt, who saw the tree, believed that it was a *Cinchona* or *Exostemma*. The genus *Cinchona* at the time included the *Remijias*. In Lambert's illustration of the leaves of the Tecamez bark, the leaves are of a peculiarly pointed form, closely tallying with the form of the leaves of *Remijia pedunculata*, as figured by Karsten. These fragments of evidence seem never to have been noticed together.

Small parcels of a bark very unlike ordinary cuprea bark have been imported with the latter. It seems to be almost midway in character between *China bicolorata* and *pedunculata*.

The analysis of the bark gives results which contradict the experience of previous observers. It contains chinonin and chinic acid, which were actually identified, also quinine, .255 per cent, equal to .34 per cent of quinine sulphate; cinchonine, .06; quinidine, .05, and amorphous alkaloids, .39. These are cinchona or remijia alkaloids, and the absence of cinchonidine is negative evidence in favor of the remijia theory. The conclusion can hardly fail to be that the *China bicolorata* is a true *Remijia*, and it is suggested that its botanical source should be known henceforth as *Remijia bicolorata*.

Inhalation of the Vapor of Glycerin for Cough.

OF interest in connection with the article on page 206, we quote the following abstract from the *Revue Médicale*, of Aug. 30th, which appears in the *Medical Record:*—"Professor Traster employs with great benefit the vapor of glycerin for the alleviation of a fatiguing or painful cough. A couple of ounces of glycerin are put in a porcelain dish and evaporated over an alcohol lamp. A large quantity of vapor is thus given off which is inhaled with great relief by patients, especially consumptives who are troubled with a harassing cough."

It is very safe to say that this can hardly be the case, for without the presence of watery vapor, such a procedure would be more than likely to lead to decomposition of the glycerin and the formation of acreolin, the inhalation of which would be anything *but* soothing.—ED. AM. DRUG.

* Abstract of paper read before the Brit. Pharm. Conference by J. Hodgkin. After *Chem. and Drug.*

Notes on Essential Oils.*

Oil of Bay.—Since its first introduction, the consumption of this oil has increased tenfold. Its solution in alcohol presents some difficulties. Even absolute alcohol does not dissolve it to a clear solution, and it is, therefore, best to add the oil at once to dilute alcohol (50%), and produce a clear solution by filtration.

[The original pamphlet of Schimmel & Co. says here: "The Pharmacopœia of the United States (*sic*) likewise praises the refreshing effects of an alcoholic solution of oil of bay in cases of nervous headache, faintness, and other nervous disorders, applied on soft linen to the head and forehead. It is also highly recommended by the same authority in the form of spray in the room of the sick or the convalescent patient." The above passage is, of course, taken from the "United States Dispensatory," and not from the official U. S. Pharmacopœia, which does not contain therapeutic hints.—ED.]

Oil of Birch (crude).—There is some uncertainty about the true source of this article. At all events, no guarantee can be given that it is actually obtained from the birch, as is asserted by the Polish dealers.

Oil of Cajuput.—Several pharmacopœias consider the green color of the oil, which is due to a trace of copper, as harmless. The Dutch Government, however, supplies the drug stores in Java with colorless oil only, and Japan only permits the importation of the latter.

Oil of Camphor, Japanese.—This by-product, obtained during the manufacture of camphor, arrives in larger quantities than formerly. Invoices differ very much in color and odor. When burned, it yields a very large quantity of soot, and this seems to suggest that it has been long used in China and Japan for the production of the fine pigment known as "india-ink."

Oil of Florida Cedarwood, so highly valued as a fine perfume for soaps, has been produced in larger quantities and at lower prices. If the demand should increase, it could be furnished even lower. This oil is frequently used in Europe as an adulterant for oil of cassia, citronella, and sandal wood. In the U. S., where it is obtained as a by-product in the drying-rooms of lead-pencil works, it is even used to adulturate oil of peppermint.

Oil of Citronella.—When pure, this oil is of a bright, wine-yellow color; on coming in contact with light and air it acquires a fine green color. A good test for its genuineness is its behavior towards alcohol of 75%. One volume of the oil must form an absolutely clear solution with 2, or at most, 2½ volumes of 75% alcohol at a temperature not below 20° C. (68° F.). This test invariably shows the presence of any fatty oils, and of oil of cedar, of turpentine, and other essential oils.

Oil of Copaiba.—Large lots of a colorless oil of "copaiba" arrived at Hamburg, which turned out to be derived from East Indian balsam (Gurjun balsam), and was offered at incredibly low prices. This oil is also largely used for purposes of adulteration.

Oil of Mandarin Orange.—A few kilos only of this oil, obtained from the rind of the Mandarin orange (*Citrus Nobilis*) are available, and even this small quantity had to be specially ordered by Schimmel & Co. It is said to be almost indispensable in the preparation of certain fine perfumes, "Ess Bouquet," for instance.

Oil of Eucalyptus.—The Australian supply having become very irregular and also unreliable as to quality and source of oil, Messrs. Schimmel & Co. have succeeded in finding a new place of production from which they will obtain the genuine oil of *Eucalyptus globulus* and no other. [We do not know where the firm succeeded in finding this source, outside of Australia, but if we had ourselves been obliged to search, we would have looked for it in Algiers, where Eucalyptus has been abundantly planted for a number of years.—ED. AM. DRUGGIST.] The genuine oil contains the true eucalyptol (spec. gr. 0.918; boiling point, 170° –173° C.) in considerable proportion, while the Australian oil [of commerce?] contains little or none at all, and is, therefore, medicinally valueless.

The Australian eucalyptus oil (the exact source of which is always uncertain), and the genuine oil of Eucalyptus globulus are distinguished by the following properties:

Australian Oil.	*Gen. E. globulus Oil.*
1. Mixed with alcohol even in the proportion of 1 to 15 yields a turbid solution.	Yields a clear solution with alcohol in all proportion.
2. Deflagrates with iodine.	Does not deflagrate.
3. In contact with sodium turns red.	In contact with sodium turns yellow.
4. Sp. gr. 0.860–0.870.	0.900–0.925.

Oil of Geranium, Turkish (or Oil of Palmarosa).—The quality of the oil at present on the market is the finest obtainable, and the price is lower than it has been for years.

Oil of Hops.—This seems to be chiefly used in the preparation of the well-known "Hop bitters."

Oil of Lavender, Mitcham.—The number of perfumers who indulge in the purchase of this expensive commodity becomes smaller every year. Schimmel & Co. state that, in their opinion, a skilful perfumer can produce the very same effect by taking the finest French oil of lavender as a base. At least, the odor of the Mitcham oil is very closely imitated by adding to French oil of lavender some of the finest oil of rosemary and a very little oil of cajuput, both in proper proportion.

Oil of Linaloe—is still chiefly consumed in the preparation of "Lily of the Valley" bouquet and of certain toilet soaps. This is one of the essential oils which improves by being kept for one or two years before being used.

Oil of Mirbane (artificial Oil of Bitter Almonds).—True oil of mirbane is nitrobenzol. Owing to the great depression in the price of benzol, the oil of mirbane has fallen about one-third in price. During the preceding year, benzol ruled very high and so did its derivative, the oil of mirbane. But even during the period of the high price of benzol, the *English Oil of Mirbane* ruled very low, and this for the simple reason that it is *not nitrobenzol* (sp. gr. 1.200) at all, but *nitrotoluol* (sp. gr. 1.160). This fact also also accounts for the peculiar disagreeable odor of the English article, which seems to be so little liked that English consumers often import a higher-priced foreign product.

Oil of Horsemint.—This new article is likewise introduced by the New York agents of the house. It is distilled from the fresh herb of *Monarda punctata* and has an odor intermediate between that of oil of thyme and oil of Spanish hops [*Origanum creticum*]. Even with moderate cold, it separates a crystalline substance, which, according to Prof. Flückiger, is identical with thymol. [The original, from which we translate, again refers here to the "United States Pharmacopœia" as a source of therapeutic information, when it should have said "United States Dispensatory," the latter being the unofficial commentary upon the official pharmacopœia, which latter contains not a single therapeutic remark.—ED. AM. DRUG.]

Oil of Orris Root.—This exquisite and expensive perfume (solid at ordinary temperatures) has been again somewhat lowered in price and will, no doubt, find more universal employment. Schimmel & Co. state that they produce about 2 kilos (4 lbs. 6 oz.) of the pure oil per week.

Certain competitors have been offering a "liquid oil of orris" at greatly reduced rates. This is merely a solution of the pure oil in oil of bergamot or oil of cedar, and is certainly not economical to buy, as everybody can dissolve the genuine oil himself.

Oil of Wild Garlic.—Schimmel & Co. have extracted the oil from a weed (*Allium ursinum*) which had been pulled up in large quantities by government order. It is merely offered for scientific investigations, and the firm declines having anything further to do with it, as its preparation is one of the most disagreeable operations they had ever experienced.

Oil of Curled Mint.—The recent total deficiency of this oil in the market will probably be shortly relieved by the American agents of Schimmel & Co. (Messrs. Fritzsche Bros. of New York). It seems, therefore, that the cultivation of this species of mint has been regularly undertaken here.

Oil of Petitgrains (Paraguay).—This brand has in a few years conquered the market and has become a serious rival to the French product. Direct shipments from the principal producers in Asuncion will hereafter reach Schimmel & Co. The production is said to be capable of considerable extension; already it amounts to about 2,000 kilos per year. The same producer also obtains a few kilos of oil of neroli, which are, however, bespoken or bought up by houses in Buenos Ayres.

Oil of Pepper.—As an explanation why the house has been able to sell this oil at such low prices that they appear out of proportion to the price of the product, the interesting fact is adduced that the oil is obtained as a by-product in the preparation of the exquisite perfume "heliotropin," which is in reality piperonal.

Oil of Peppermint.—All sorts of rumors are circulating as to future contingencies affecting the price of this oil. An advance is prophesied by some, for instance, on the ground that a large portion of the American oil will hereafter be utilized for the manufacture of *menthol*. Messrs. Schimmel & Co. express themselves, regarding this point, as follows:

"All reports concerning the manufacture of menthol from American oil of peppermint we regard as myths. According to experiments undertaken in our own laboratories, the practical manufacture is rendered impossible by the immense quantities of deteriorated oil of peppermint which are obtained as by-products. But if the attempt were made to throw such oil, deprived of menthol, back on the market as genuine oil of peppermint, every connoisseur will certainly remonstrate with energy against its acceptance. At all events, it is possible that the manufacture of menthol will be attempted; only it would then be very necessary to be exceedingly cautious in purchasing the oil. And if exhausted oil is eventually rejected by the public, the whole undertaking will collapse, even granted that it will be really carried out in practice, which, according to our observations, must be declared improbable." [We think the reputation of the manufacturer (who was first announced in this journal) as having undertaken the manufacture of menthol is so well established that none of the alarming consequences alluded to above need be feared.—ED. AM. DRUGG.]

Oil of Rose.—Schimmel & Co. an-

* From the Bericht von Schimmel & Co., Leipzig, September, 1884. Communicated by the agents of the house: Messrs. Fritzsche Brothers, of New York.

nounce that they have at last succeeded in inducing florists and owners of suitable localities, in the neighborhood of Dresden, to undertake the cultivation of roses on the large scale, and that they have already started the manufacture of pure oil of rose, having thus far obtained about 3 kilos. By a careful study of the kinds of roses best adapted for this industry, the firm expects to far excel the foreign oil in quality. So far, the price of the German oil is quite high, but is equivalent to its purity and superiority.

Oil of Origanum Creticum (*Oil of "Spanish Hops"*).—This has been so scarce that it could not be supplied to the trade, but only to pathological laboratories of a number of universities, which are regular customers for it. At present, there is a little more available than formerly.

Oil of Vetiver.—The preparation of this oil is a very disagreeable task, owing to the great dustiness of the vetiver roots. This dust cannot be removed without also removing the particles of bark containing the oil cells.

Cumarin.—The price of a kilo of tonka-beans is at present at least 15 marks ($3.60); this quantity contains not more than 15 gm. (½ oz.) of cumarin; and this quantity of *artificial* cumarin costs only 4.50 marks ($1.21). It is easy to understand that the artificial substance is gradually replacing the natural, both in perfumery and in the tobacco industry.

Commercial Balsam of Peru and the methods for ascertaining its purity.*

THE writer of the paper states that adulteration of the balsam has been more observed on the Continent than in Great Britain, and concludes with a report on twelve samples obtained from representative sources, only one of which was adulterated (with storax). The Pharmacopœial and other recognized tests are:—

1. *Preliminary tests* (Specific Gravity).—This is an important factor in the indication of impurity. Ten years ago the balsam had a specific gravity of 1.150 to 1.160, and now it is 1.137 to 1.145 according to the Ph. Ger., and 1.135 to 1.150 according to the U. S. P. This change is said to be due to a modification which the balsam undergoes in the course of its purification at the ports of shipment. The author recommended 1.137 to 1.150 as a standard; it being desirable to adopt a minimum which shall exclude balsams contaminated with storax, benzoin, colophony, copaiba, and fixed oils, all of which lower the density.

The Sulphuric Acid Test, of the U. S. P., was found to be very good for detecting fixed oil and copaiba. It was pointed out that Schlickum's recommendation to use hot water is very bad, because in all cases it prevents the resinous mass from hardening.

The Ammonia Test, of the Ph. Ger., designed by Dr. C. Grote was also found to be exceedingly good for the detection of colophony. Five drops shaken up with about a drachm of liquor ammoniæ (B. P.) gives a froth amounting to about twice as much as the liquid, and if there be a large percentage present, the solution gelatinizes in a day. Schlickum's modification of the test was condemned.

Flückiger's Lime Test.—This consists in rubbing up 10 drops of balsam with 0.4 Gm. (say 6 grains) of lime. If the balsam be pure, according to Flückiger, it should not harden, but remain soft and kneadable, whereas balsam containing storax, colophony, copaiba, or benzoin becomes quite hard and brittle. This the author denied, and gave details of experiments in proof of his statement. He had also tried Grote's modification of the test, which consists of adding merely a few drops of spirit to the balsam, and by this method he got very hard masses with all kinds of balsam, pure and adulterated; but balsam to which 10% of castor oil had been added remained permanently soft. It was, therefore, inferred that the hardening was due to the alcohol added. The storax- and copaiba-adulterated balsams communicate their distinctive odors to the lime paste.

2. *Qualitative Tests.* (The action of solvents as a means of detecting impurity and indicating quality.)—The odorous principle (cinnamein) was dissolved out by petroleum spirit, sp. gr. 710, boiling-point 65° C. If less than forty-one per cent of cinnamein was obtained, it was inferred that the specimen was not good; but only one gave less, viz., the one adulterated with storax. More than half of those examined contained above forty-five per cent, from which it would appear that our supply is of fine quality. It was pointed out that castor oil and copaiba increase the yield of cinnamein. Schlickum states that they do so by their own weight, but the author gave proof to show that they do this only to a limited extent. The P. G. requires that the petroleum spirit residue should not have the odor of turpentine, storax, or copaiba, and that it should not give a blue or greenish-blue coloration with nitric acid P. G. The test has been condemned by Grote, and the author has endeavored to show where it misleads. If the petroleum spirit solution be not filtered, the suspended particles of any kind of balsam give the green coloration, and nitric acid, P. G. is too weak to do what is expected; but the B. P. acid (sp. gr. 1.420) gives an intense blue with copaiba, and bright emerald green with colophony-adulterated balsams. Other adulterants, and even pure balsam, give colorations which are not, however, sufficiently distinctive to rank as tests. Castor oil is also detected in the petroleum-spirit residue by saponifying with weak alcoholic potash and acidifying with hydrochloric acid; oily globules, in addition to crystals of cinnamic acid, separating if there be oil present.

Regarding the carbon bisulphide test of the U. S. P., which states that three volumes of bisulphide should separate from one of the balsam not more than forty per cent of insoluble matter. This percentage is much too high, sixteen per cent at the most being sufficient, because an admixture of benzoin increases it, and a high percentage of insoluble matter is one of the best means of detecting that adulterant. It was shown that the amount of insoluble matter bears no relation to the amount of resin in the balsam.—*Chemist and Druggist.*

*Abstract of a paper by Peter MacEwan, read before the British Pharm. Conference.

The Manufacture of Iodide of Potassium.

MR. C. F. CAPAUN-KARLOWA is the author of a long paper in *Neueste Erfind. und Erfahr.*, in which he discusses the different available methods for preparing iodide of potassium. According to him, the most advantageous is that originally recommended by Duflos, which consists in allowing iodine to act upon zinc in presence of of water, precipitating the resulting iodide of zinc by means of carbonate of potassium, removing any remaining metal from the iodide of potassium solution by hydrosulphuric acid, filtering and crystallizing.

Although iodine and zinc are farther apart in the electro-chemical series than iodine and iron, yet their union takes place with less energy. As the zinc, when working this process on a large scale, must be used in a granulated condition, a large excess of it is necessary, in order to present enough surface to the iodine. The undissolved portion, of course, can be used in the next operation.

If 1 part each of iodine and granulated zinc, and 2 parts of water are brought together at the ordinary temperature, no reaction ensues. On gradually warming, a slow action is started, the liquid first acquires a yellowish color and gradually becomes dark-brown. After two or three hours, it again gradually becomes lighter colored, and finally as colorless as water. The liquid is now filtered and the remaining zinc washed with distilled water and put aside. The united liquids are heated to boiling and mixed with enough solution of carbonate of potassium until no more precipitate is produced.

The reaction takes place as follows:

$5ZnI_2$	+	$5K_2CO_3$	+	$3H_2O$	=	$10KI$	+
iodide zinc		carb. of potassium		water		iodide potassium	
+	$2ZnCO_3\,3(ZnOH_2O)$			+		$3CO_2$	
	basic carbonate of zinc					carbonic acid gas	

Since the escaping carbonic acid gas causes a good deal of effervescence, capacious vessels must be used for the operation, and in order that *all* the zinc be precipitated, an excess of carbonate of potassium must be used. To insure the complete precipitation of the zinc, the filtrate must be tested with sulphide of ammonium, and, if necessary, the liquid must be digested (warm) for some time with the carbonate of potassium added in excess.

The precipitate is washed with distilled water until the washings no longer affect mercuric chloride. [In practice it is not convenient to add all the wash water to the first liquid, to be concentrated together, as it would unnecessarily dilute the strong solution first obtained. It is preferable to use the dilute wash-waters in place of water in the next operation.—ED. AM. DR.] Since the precipitated carbonate of zinc is quite compact, the washing is easily performed.

The excess of carbonate of potassium still remaining in the liquid is now neutralized or nearly so with hydriodic acid, and hydrosulphuric acid gas then conducted through the liquid, in order to remove every trace of metal. Finally the liquid is filtered, if necessary, heated to drive off the excess of hydrosulphuric acid, and then evaporated [to the crystallizing point or] to dryness.

This method has the advantage of being simple and not causing any notable loss of iodine through violence of the reaction, nor need the operation be hastened, as the products are not affected by exposure to the air. The washing of the precipitated carbonate of zinc, however, must be continued for a considerable time, until all the iodide of potassium has been washed out of it.

The author lays special stress upon the necessity of adding a *considerable* excess of carbonate of potassium to insure the complete precipitation of the zinc.

Distinction between Rice-Meal and Buckwheat-Meal.

THE sample is made into paste with strong potash-lye, heated on the water-bath, and treated with hydrochloric acid. In case of rice, the paste is yellow, and, after treatment with acid, white. Buckwheat gives a dark-green paste which is turned red by hydrochloric acid.—*A. Lehn* in *Zeitschr. f. anal. Chem.*

The British Medical Association created a new section at its recent meeting at Belfast—that of Pharmacology and Therapeutics.

Japanese Cod-liver Oil.*

NORWEGIAN cod-liver oil is obtained from several varieties of the cod species, such as the common cod, *Gadus Morrhua*, the dorsch, *G. Callarias*, the ling, *G. Molva*, the coal fish, *G. Carbonarius*, the pollock, *G. Pollachius*, etc. Japanese cod-liver oil (at least that manufactured and exported by Cocking & Co.) is the product of the Japanese cod, *Gadus Brandtii*. It is a fish frequenting the shores of the Northern part of the main island of Japan (Nipon), and of the whole of the northern island of Yesso. It comes in immense shoals about the months of November, December, and January, and is caught by the fishermen with hooks and lines near the shore. The port of Otaru in Yesso is where this industry is conducted on the largest scale. Immediately upon the fish being caught, the livers are taken out, separated from the blood, veins, membrane, and other impurities, and thoroughly washed. The livers are carefully separated, and only the healthy, large and plump ones are retained for the extraction of the best qualities of oil. The oil, as it exists in the cells of the liver, is naturally of a very pale straw color and bland taste, the various shades of darker color than this, up to the dark brown seen in commerce, is only the effect of the artificial extraction of the oil by excessive heat, and the greater or lesser degree of putrefaction of the liver before the oil is extracted. The oil being contained in cells or glands, to get a large yield of oil, great heat has to be applied, or else the livers are allowed to become putrid so as to reduce the cellular tissue, and thus allow of the escape of the oil. The yield of this last process is large, but red and dark-brown in color and more or less rancid, and the attempt is sometimes made to improve its color by bleaching with chemicals, such as sulphuric acid, etc., which of course entirely destroys the delicate chemical constituents upon which the value of the oil depends. In the process adopted for the extraction of the Japanese cod-liver oil, the clean and fresh livers are merely reduced to a pulp, which is transferred to large, iron steam-jackets, enamelled inside, and the oil is extracted by steam at as low a temperature as possible, until no more can be drawn off without an increase of heat. This is then transferred to receivers, allowed to cool, and the solid fat frozen out. The climate of Yesso during the cod-fish season greatly facilitates the operations in producing a pure and naturally refined oil, as the temperature of the air is always from 10° to 15° below freezing. This not only keeps the livers in a fresh state, during the preliminary operations of cleaning and reduction to a pulp, but affords a natural and ready mean of separating the solid fats, which is therefore most effectually done, simply because it costs nothing. After separation of the solid fat, the oil is shipped to Yokohama and there further purified by steam washing, in order to remove volatile acids, such as acetic, butyric, caprylic, etc., which, if allowed to remain, cause irritation of the throat and stomach.

Cod-liver oil, as an organic body, differs essentially from all other fixed oils. It is not determined among medical men and chemists as to what particular constituents it owes its remarkable properties, but the researches of many tend to the conclusion that this oil owes its action to its olein—of which the best pale oil contains about 80 per cent or, what is more probable, to the biliary principles contained in the olein. There are several inorganic elements found in slight quantities in cod-liver oil, two of which have especially been laid stress upon, viz., iodine and phosphorus, but all varieties of the oil contain such infinitesimal quantities, that one cannot recognize in either of these elements the cause of the tonic and reconstituting action of cod-liver oil. The active principle seems to reside almost wholly in the particular fatty substance itself.

Japanese cod-liver oil has been known in Europe among the trade for several years, and many shipments have been forwarded during that time. It has usually (or always) gone into consumption as "Norwegian cod-liver oil," to make up the deficiency in the supply of the latter. (The *Chem. and Drug.* of May 15th, 1883, remarked: "Japan (cod-liver oil) in cases still meets with inquiry, principally for mixing; if more care is taken next season in preparing this oil, we think it will become a great rival to the Norway oil.")

A large cod-fishing industry has for a long time been carried on in the northern portion of Japan, more particularly in that part of the empire known as Yesso, and European experts often looked forward to this field as an important source of future supply of cod-liver oil. But, up to within three years ago, the fishermen actually threw the livers away, as the government of Japan made a close monopoly of the cod-fishery, and not only allowed the valuable livers and oil to go to waste, but even prevented private enterprise from availing itself of the opportunity. Since, however, the colonization department of the Japanese government, known as the *kaitakushi*, was abolished, and the island of Yesso made into a prefecture, this source of wealth can now made available. And in the face of the immense falling off in the supplies from Norway, this has occurred at a most opportune time.

A chemical examination made Mr. H. Yoshida, chief chemist of the Japanese Geological Survey Department, showed, among other properties and constituents (already well known from previous analytical reports), the presence of about 1.5% of *gaduin* and about 0.98% of salts which were left behind on ignition. The peculiar principle gaduin, which exists in all cod-liver oils, was separated by De Jongh's method. The oil was saponified with soda, the resulting soap decomposed with solution of neutral acetate of lead, and the compounds thus formed treated with ether. By so doing, the gaduin and oleate of lead are dissolved and may be filtered off from the insoluble margarate of lead. After evaporating the ethereal solution, reconverting the oleate of lead into a soda salt, finally dissolving the residue in hot alcohol of sp. gr. 0.875, and cooling the solution to 0° C. (32° F.). the gaduin is separated by the aid of sulphuric acid.

Thus prepared and dried, gaduin is an inodorous, tasteless, dark-colored, friable substance. It dissolves with red color in sulphuric acid, from which it can be reprecipitated either by water or by an alkali.*

* Abstracted from statistics and other papers kindly supplied by COCKING & Co., of Yokohama, Japan.

On American Sulphuric Acid.

UP to a few years ago, all the sulphuric acid produced in the United States was made from Sicilian sulphur. The attempts which were occasionally made to utilize the domestic native sulphides (pyrites) were in no case permanently successful, since the manufacturers did not use either the proper methods or apparatus. Prof. G. Lunge had drawn attention to this fact already in the German edition of his Handbuch der Soda-Industrie, and in the subsequent English edition he stated that it was only a question of time when pyrites would take the place of Sicilian sulphur in the United States.

This prediction has been already partly fulfilled, and it is said to be chiefly due to the detailed description of the most practical and economical methods used by England and other nations for working pyrites, which Prof. Lunge described at length in his elaborate work. In June, 1882, only two sulphuric acid works used pyrites, but in March, 1884, the number had already increased to eighteen.

With a desire to correct some erroneous statement made by him in reference to a misunderstood or misconstructed circular which had reached him from the U. S., Prof. Lunge takes the opportunity of announcing that many American pyrites ores (as, for instance, that of the Davis Company of Charlemont, Mass.) are absolutely *free from arsenic*, and that, therefore, an acid prepared from *such* pyrites, is able to compete even more favorably with sulphur-made acid, than is the case in Europe where pyrites is almost always contaminated with arsenic.

Another pyrites free from arsenic is that offered by the Sulphur Mines Company, of Virginia. — *Dingler's Journ.*

* Cocking & Co. quote cod-liver oil, in 35 lb. tins, at 14 cents per lb. free on board at Yokohama. By the cask or for larger quantities, a proportionate reduction would no doubt be made.

Action of Arsenious Acid upon Glycerin.

A PAPER by Herbert Jackson, in the *Chemical News*, calls attention to the reaction which occurs when glycerin is saturated with arsenious acid. Several text-books mention the fact that glycerin is its best solvent, but the reason for this seems never to have been pointed out. Mr. Jackson observed that a considerable quantity of water was given off when anhydrous glycerin was treated with arsenious acid, and proceeded to determine the amount of water so evolved when a weighed quantity of glycerin was treated with an excess of the arsenious acid. 1.5 parts of the acid and 1 part of glycerin were used, and the mean of several experiments showed that an amount of arsenious acid, equal at least in weight to the glycerin, was necessary.

Experiments to determine the maximum quantity of the acid which could be made to combine, consisted in inclosing different proportions of the substances in sealed, stout glass tubes, and heating them for two hours at 250° C. In all cases where the arsenious acid was in excess of the proportion above mentioned, some of it crystallized and some blackening of the contents of the tube occurred, owing to the reduction of arsenic.

Further experiments showed that 14.45 grammes of glycerin require for saturation 15.98 grammes of arsenious acid and give off 4.57 grammes of water. In other words, 184 parts (2 equivalents) of glycerin require 198 parts (1 equivalent) of the acid, and evolve 54 parts (3 equivalents) of water.

The experiments further showed that arsenious acid and glycerin react to form normal glyceryl arsenite, or arsenious ether of glycerin, a compound which is a colorless, transparent, vitreous solid; very deliquescent and easily decomposed by water into glycerin and arsenious acid. It is entirely soluble in absolute alcohol, and is left unchanged when the alcohol is driven off by evaporation. It is also freely soluble in glycerin, as would be expected. It becomes soft at 100° C., and can be poured easily when the temperature reaches 200° C. When quite dry, it appears to be stable at the boiling point of glycerin (290° C.) but is decomposed above that temperature.

Method for the Assay of Indigo.*

THE determination of indigo blue, or indigotin, in indigo, presents various difficulties. The processes in use are long and subject to considerable error. The methods which depend upon the reduction and subsequent measured oxidation of indigo require the elimination, previously, of all other reducible bodies, to insure accuracy—an operation both long and tedious. The method by formation of sulphindigotine and its estimation by a standardized permanganate solution always gives too high results by reason of the presence of other oxidizable bodies.

For several years the author has used a method by sublimation which has been uniformly satisfactory. Indigo sublimes readily, and, by a careful regulation of temperature, can be separated from the components of indigo, indigo brown, indigo red, mucilaginous matter, etc.

The operation is best effected in a shallow platinum tray. Those in use are 7 Cm. long, 2 Cm. wide, 3 to 4 Mm. deep. Into such a tray is weighed about 0.25 Gm. of finely powdered indigo which has been dried at 100° C. The weighing should be rapid to avoid absorption of moisture, and it is best not to exceed this amount greatly for a tray of the size noted, in order that the layer of indigo may be thin.

Spread the weighed powder evenly over the tray by tapping it with the finger; this can be done easily if the bottom of the tray is quite flat, with no rounding toward the sides. Sublime on an iron plate, at first raising the heat gradually to avoid burning.

When the surface of the indigo is covered over with a shining layer of crystals, turn down upon the plate a piece of Russia iron, bent into the form of a flat arch, the highest point of which is about one Cm. above the plate, and a little longer than the tray. Lower the heat at the same time that the arch is put on, as the temperature rises rapidly.

The purple vapors of indigotin are now given off, a portion condensing upon the under sides of the arch. Raise the heat slowly, and enough to maintain a constant sublimation of indigotin. By raising the arch the progress of the work is seen. For a five per cent indigo the time required is thirty to forty minutes; but soft Java indigo must be sublimed with more caution, and sometimes requires two hours. The last crystals of indigotin are easily seen upon the dark-colored surface of the residue. When all have disappeared, remove the tray, cool in a desiccator and weigh. The loss in weight is indigotin. Observe that the heat be no greater than is required to sublime the indigo blue; and that no yellowish vapors appear which would indicate the destruction of the residue, leaving only ash.

If the bottom of the tray is flat, and everywhere touches the plate, the sublimation goes on regularly, except in case of very rich indigos, already mentioned, when care must be exercised to prevent burning.

Results by this method are constant within one-quarter of one per cent, but the author has frequently made re-determinations with variations of only half that error.

A little practice enables one to leave the sublimation with only occasional attention, and three or four determinations may be carried on at once under the same arched cover.

For commercial and industrial purposes, this method appears to have decided advantages. Its rapidity is in great contrast to the other methods which admit of perhaps two determinations in a day, while in point of accuracy it is not wanting.

* From a paper by Chas. Tennant Lee, in the *Journ. of the Amer. Chem. Soc.*, vi., 185.

Tests for Identity and Purity of Cod-Liver Oil.

ACCORDING to A. Kremal, the cod-liver oil supplied to the European markets is frequently spurious, being either a mixture of the genuine oil with seal or coalfish oil, or else simply one of the latter oils, alone or mixed. Of late years, Japan has also furnished the market with so-called cod-liver oil, the quantity of this in stock in London, in April, 1884, being 500 cases, each containing two tins of 40 to 80 pounds each, and 20 casks each holding 25 gallons.*

In order to find, if possible, a test which could be used to ascertain the identity and purity of genuine cod-liver oil, Mr. Kremel made extensive experiments with oils of different but known origin. He determined their specific gravity, percentage of liquid and of solid fatty acids, melting points of the solid acid, percentage of free fatty acid, amount of potash necessary for saponification, and amount of iodine solution necessary for iodizing the oil.

While some of the results thus obtained appear to be available, in certain particular cases, to distinguish the pure from spurious oils, yet most of the values are so nearly similar that no general method can be based thereon.

At the conclusion of his paper, however, the author states that a very good process for distinguishing the pure from the spurious oils may be based upon their behavior towards fuming nitric acid, spec. gr. 1.500. (Compare note on Cod-Liver Oil on page 216 of this number.)

If ten to fifteen drops of the respective oils be poured on watch-glasses, and two or three drops of fuming nitric acid are slowly poured in from the side, the several oils exhibit the following appearance.

1. Genuine cod-liver oil (from *Gadus Morrhua*) turns *red* at the point of contact; when afterwards stirred with a glass-rod, it become fiery rose-red, soon passing over into pure lemon-yellow.

2. Coalfish oil (from *Gadus Carbonarius* turns intensely *blue* at the point of contact; when stirred, it turns brown and remains so for two or three hours, when it finally passes likewise into a more or less pure yellow.

3. Japanese cod-liver oil behaves like the preceding, except that red streaks are sometimes observed along with the blue ones, on the addition of nitric acid.

All three varieties likewise yield the well-known color reaction for biliary acids (with sulphuric acid.) Two different kinds of cod-liver oil appear to be exported from Japan, since Gehe & Co. report having met with one which did not give this color reaction.

4. Seal oil, treated as above stated, at first shows no change of color, and becomes brown only after some time. As this oil is not a *liver* oil, it of course does not give the reaction for biliary acids.

According to the author, this reaction with fuming nitric acid is so intense and characteristic that admixtures of them (of not less than about twenty-five per cent) to genuine oil may be readily detected. After *Pharm. Post*, 1884, Nos. 30–31.

Furniture Polish.

ONE of our correspondents sends us the following formula, which, he says, is easily prepared and works well:

Alcohol	4 oz.
Turpentine	2 "
Damar Varnish	1 "
Linseed Oil (raw)	8 "
Acetic Acid	1 "

A Greek Pharmaceutical Journal.—Prof. X. Landerer announces the appearance of the first number of a pharmaceutical journal published by the pharmaceutical society of Athens.

* On Japanese cod-liver oil, see preceding page.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,365.—**Rapid Disinfection** (Dr. A. F. M.).

When it is required to rapidly disinfect sick-rooms in private houses or in hospitals, it is usually found inconvenient to generate chlorine gas from chloride of sodium, binoxide of manganese, and sulphuric acid, as detailed in one of our previous numbers. If chlorine is to be used, it is best to generate it by means of chlorate of potassium and hydrochloric acid.

A very simple and equally effective way is to use *bromine*, and as our correspondent specially inquires about this agent, we will give him the following practical hints derived from our own experience. Supposing a small room, say a water-closet, is to be disinfected, this should first be thoroughly flushed, the floors well wetted down, also the walls dampened if possible, and a plate containing sand be placed at as high an elevation in the room as possible. All outlets excepting the door having been hermetically closed or pasted up, some person standing upon a chair or other convenient place, quickly opens a bottle of bromine and pours its contents upon the sand, after which he quickly retires through the door, which should be kept *open* until he is outside. The door is then to be also hermetically closed. For a space of, say 600 cubic feet, about one ounce of bromine will suffice. If the bottle of bromine cannot be opened, owing to the stopper being permanently caught in the neck; the bottle is broken over the sand by means of a hammer.

If large rooms or hospital wards are to be thus disinfected, it is advisable to have a series of plates distributed in different portions of the room, at proper elevation. Some systematic plan should also be followed in emptying the bottles, in order to avoid risk to the persons performing the manipulation. Each plate and bottle of bromine should be in charge of a separate person, previously drilled or instructed how to act. Every outlet having been closed except the door, which latter should be *held open* by a special person, who should be provided with a bottle of ammonia, in case of some person inhaling too much of the bromine by the premature breaking of a bottle or too rapid diffusion of the gas—the charging of the plates should take place in a regular rotation. Previous to the bottles being taken into the room, the stopper of each should be tried, and either only such should be used, as have easily removable stoppers, or the persons to whom bottles with refractory stoppers are given should be provided with a hammer or other iron tool to break them. Every person being in his place, at a given signal the one farthest from the door empties or breaks his bottle on the sand and immediately retires. In rapid succession the others at a given signal perform their share of the task, and as soon as all have left the room the door is closed and securely pasted up. If some such precautions are used, accidents can scarcely ever occur. The failure to observe a fixed plan, however, has, on several occasions,

almost resulted in very serious consequences. For instance, on one occasion within our recollection, the persons near the exit of the room prematurely emptied their bottles, and when the persons stationed at the more distant places were compelled to pass through the volume of vapor already evolved, several of them were seriously affected by the inhalation of the bromine.

Bromine disinfection is at least as effective as that by means of chlorine. It is also economical, particularly when the few preparations it requires are taken into consideration. To be effective, however, it is necessary to have plenty of water-vapor in the room, for without this neither chlorine nor bromine will be able to destroy or decompose noxious germs or gases.

No. 1,366.—**Rat Poisons.**

The most effectual is phosphorus. Rats are attracted by its odor as well as by its luminousness in the dark. After they have taken it, they are harassed by thirst so that they will leave the premises in order to seek water and die.

Phosphorus Paste.

In a warm porcelain mortar about 15 parts of warm water and enough flowers of sulphur are triturated with four parts of phosphorus, until a butter-like mass is formed. This is then mixed with fifty-five parts of wheat-flour and 15 parts of fat (best from roasted pork) and enough cold water to produce a soft uniform paste. Finally 2 parts of powdered anise-seed (or $\frac{1}{4}$ part of oil of anise) are incorporated with it, and the mass transferred to stone-pots impervious to fat, which should be small enough to have their contents consumed in a short time.

The paste is applied, by means of a stick of wood, to buttered bread, pieces of sausage, or put inside of little fishes, which are laid about in the evening.

Many other good methods for destroying rats have been recommended, among which the following perhaps deserve mention:

1. Nux Vomica, ground... 1 part.
   Beef-tallow..... 3 parts.
2. Arsenious acid..... 1 part.
   Flour.....10 parts.
   Sugar.....10 "
   Prussian blue..... 1 part.

[N. B. Whenever a poison for rats or mice would naturally have a white or other apparently innocent looking color, *always* add some striking coloring matter, of a tint likely to repel any one from tasting it.]

3. Strychnine..... 1 part.
   Fresh or smoked Sausage.....300 parts.
4. Strychnine..... 1 part.
   Wheat Flour..... 50 parts.
   Sugar..... 20 "
   Prussian Blue..... 1 part.

Butter enough to make a pill-mass.

No. 1,367.—**Prescription Difficulty** (W. U. Z.).

This correspondent asks how the following prescription can be prepared so that the resulting mixture will be clear. He says he has tried every conceivable way to combine them, and failed to get a clear mixture. He also asks what is the effect of the addition of dilute phosphoric acid to a solution of pyrophosphate of iron.

℞ Strychninæ Sulph..... gr. ½
Quininæ Sulph.,
Ferri Pyrophosph. .....āā ʒ i.
Ac. Hydrobromici,
Ac. Phosphorici dil.....āā ℥ i.
Aquæ..... ʒ ij.

In the first place, we presume it was intended to write "Acidi Hydrobromici diluti," inasmuch as the kind of acid wanted is not defined by the term used in the prescription. Next, we have to state that the whole trouble is the presence of pyrophosphate of iron. If we remember that the true pyrophosphate of iron is a salt insoluble in water and soluble only in certain acids, for instance pyro- and metaphosphoric acid, but insoluble or nearly so in certain other acids, for instance, in the orthophosphoric or officinal phosphoric acid, we will soon have a clue to the difficulty. The insoluble pyrophosphate of iron is converted into a soluble salt by means of an alkaline citrate, and in this form appears in green scales which are soluble in water. As long as there is not added an acid which is strong enough to decompose the alkaline citrate, the latter salt will remain intact and therefore keep the otherwise insoluble iron salt in solution. But when the alkaline citrate itself is decomposed, it ceases to exert a dissolving effect upon the iron salt. If only enough of the disturbing acid has been added to unite with a portion or the whole of the alkali (without being in excess), the citric acid will be set free, and this, alone, exerts but a feeble (if any) dissolving effect upon the pyrophosphate; hence the latter separates. If the disturbing acid has been added in excess, and this acid is one of those which do not at all, or but slightly, dissolve the pyrophosphate, the precipitate will appear or remain likewise. But if the disturbing acid can dissolve the iron salt—as, for instance, is the case with metaphosphoric acid—then a clear solution will result.

Diluted hydrobromic acid is not a good solvent for pyrophosphate of iron. The strong acid, however, dissolves it, producing a red solution of intense acidity.

If the above prescription is put up with the strong hydrobromic acid, say Squibb's 34%—in this way that the quinine and strychnine are dissolved in the hydrobromic acid, then the pyrophosphate in about 1 oz. of hot water, and the two solutions mixed, a copious whitish precipitate will appear in the midst of a blood-red liquid, and by shaking a clear mixture will result. On now adding *meta*phosphoric acid (*not* the officinal acid), the blood-red color will disappear and the liquid assume a yellowish-green tint, but it will rapidly lose its transparency. Had the officinal phosphoric acid been taken, the effect would have been still worse. The metaphosphoric acid solution should be kept in every prescription department; it is prepared by dissolving *glacial* phosphoric acid in water. Since the latter is never pure, but generally contains more or less phosphate of sodium, the resulting acid is never of uniform strength. It should be made by dissolving 1 av. oz. of the acid in 11 fl. oz. of water. As the solution is only used in mixtures containing pyrophosphate of iron, the deviation from the exact strength of the officinal acid is unimportant.

To recapitulate: The prescription above given is clearly incompatible; with diluted hydrobromic acid (which was probably intended) and the most favorable phosphoric acid it cannot produce a clear mixture. And with the strong hydrobromic acid it does not do so either, while the mixture resulting in this case is, besides, excessively acid. The remedy is to request the prescriber to leave out the hydrobromic acid.

No. 1,368.—**Defiance Glue or Paste** (N. N.).

Some years ago, a paste was offered in the market under the above name by an individual peddling about the city, which had a name given to it somewhat like the above, but the exact title of which we have forgotten. On examination it proved to be nothing else but the well-known combination between chromic salts and gelatin. It was sold in two little pots, the contents of one were to be pasted on one of the articles and the contents of the other on the other; the two articles were then to be put together and on exposure to light, the glue would become insoluble. It was once suggested that postage stamps should be fastened to envelopes in this matter; the difficulty only was to find some way of applying the compound to the stamps and keep it from becoming insoluble until they had to be actually used. And this difficulty has never been overcome.

No. 1,369.—**To render parchment transparent** (M.)

It is recommended that the parchment be soaked in a strong solution of wood ashes, we presume a solution of carbonate of potassium would answer equally well, if not better. It should be frequently taken out and squeezed until it is found to have become transparent, after which it is to be stretched on a frame and dried. Subsequently it can be much improved, it is said, by giving it on both sides a coat of clear mastic varnish made with turpentine.

No. 1,370.—**Havana Flavoring** (J. A. E.).

It is useless to ask us questions of this kind, which could only be answered by the members of the firm. It is not likely that they would divulge their secret, the chief capital they work with, and it is a hopeless task to attempt to discover it by analysis. The only way our subscriber is likely to get at least near the solution, is by trying and compounding until he has obtained what he wants.

No. 1,371.—**Artificial Wines** (Ohio).

The poor wine crops in Europe during the last ten or fifteen years stimulated research for some methods of producing artificial wine or at least a compound into which some of the waste-products of the regular wine manufacture could be made to enter, and it was not long when practical processes were discovered.

Artificial wine is here understood to mean grape-skin wine, that is, such a wine as is produced by allowing a solution of sugar to ferment over the skins of grapes. Its preparation and sale is, of course, under ordinary circumstances, subject to criticism, and there is no denying the fact that it has and is very frequently sold for genuine wine. Nevertheless, in some years of misgrowth, the process served to supply large districts with the accustomed and indispensable beverage, and from a *sanitary* point of view, there is probably no objection to be made to it. We give the outline of the process merely as a piece of professional information.

After the juice (must) has been expressed from the grapes, the remaining skins are transferred into suitable casks, and upon them is poured a liquid containing sugar and tartaric acid. The sugar is dissolved in definite quantities of water, so as to be able to know the percentage of alcohol beforehand:

Sugar added 100 liters of water.	Spec. grav. of mixture.	Yields per cent of alcohol.
2.3 kilos.	1010	1.56
4.5 "	1020	3.05
6.7 "	1030	4.54
9. "	1040	6.09
11.3 "	1050	7.65
13.5 "	1060	9.14
15.7 "	1070	10.63
17.3 "	1080	12.05

That is, is in order to prepare a wine containing 9% of alcohol, there is prepared a cane-sugar syrup having the specific gravity 1060 and containing 13½ kilos in 100 liters of water. This solution is then mixed with 400 Gm. of tartaric acid, and about 50 Gm. of powdered tannic acid, and then poured on a suitable quantity of the grape-skins in the casks, where it is allowed to ferment, drawn off when it shows 0 by the densimeter, and transferred to a new cask. Here it is allowed to settle or is clarified, after which it constitutes a more or less agreeable

and drinkable wine. Most of this is, however, not consumed as still wine, but is converted into artificial (or rather, according to the labels, into "superior genuine") champagne.

No. 1,372.—**Dispensing Difficulty** (G. H. Q.).

This correspondent inquires how the following mixture may be prepared without a separation of the resinous matter of the tincture of eucalyptus:

℞ Sodii Iodidi	3 ij.
Sodii Bromidi	3 iij.
Tinct. Eucalypti	f 3 iij.
Syrupi	f ℥ i.
Aquæ, q. s. ad	f ℥ iv.

The above cannot be made into a homogeneous mixture without the intervention of some substance which will keep the resin of the tincture in suspension. Of course, the best agent for this purpose is gum arabic, of which about 1 drachm may be used to emulsionize the tincture. The latter is first triturated with the powdered gum arabic, and gradually about an equal volume of water added under continuous trituration. The salts having been dissolved in about 1 fl. oz. of water and the syrup, this solution is gradually added to the emulsion under stirring, and the volume then made up to 4 fl. oz. by water.

In the case of tincture of eucalyptus, it is indeed possible to produce an apparently homogeneous mixture by merely mixing the above, but it will not be permanent for many hours. By the use of acacia it may be rendered permanent for at least several days, and even longer. In the case of certain other resinous tinctures, as tincture of cannabis indica for instance, acacia *must* be used if a homogeneous mixture is to be produced.

No. 3,137.—**Migraine Powder** (Ana).

Hager quotes the following:

	Gm.	Grs.
Quinidinæ Sulph.	1.5	24
Caffeinæ	1.0	16
Acidi Tartarici	1.0	16
Morphinæ	0.05	¾
Sacchari	10	160

Mix and divide into *five* powders.

One of these may be taken night and morning. It is said to act very promptly in migraine. If, necessary, the proportion of morphine may be increased somewhat without interfering with the action of the mixture otherwise. Feeble persons may divide a powder into two parts to be taken in the course of one hour. The best vehicle for administering this powder is black coffee.

No. 1,374.—**Iodoferrated Cod-Liver Oil** (M. V.).

A formula for such a preparation has been given by van Valkenburg:

Cod-Liver Oil	394 parts.
Iodine	5 "
Iron, reduced	10 "

Mix the iodine with the cod-liver oil in a bottle which should be nearly filled with the mixture, and set the bottle aside, occasionally agitating it, until the iodine is dissolved. Then add the iron, close the bottle with an accurately fitting glass-stopper and shake it frequently during about four hours, until the liquid has acquired a purplish-violet tint. Next set it aside for a day and a half, and again shake it for an hour. Repeat this operation once more, after another day's interval. Finally set the bottle aside and allow to deposit.

When the oil is wanted, pour off a sufficient quantity, and immediately transfer the remaining liquid to a bottle (which should be completely filled with it) for future use. The bottle must always be kept perfectly closed.

No. 1,375.—**Cologne** (H. F. E., Watertown, Wis.).

It is not known what the composition of Hoyt's German Cologne is, and thus far attempts to imitate it have not been remarkably successful. A formula proposed by D. A. Frank consists of

Oil of Bergamot,	
" " Lemon	āā ½ oz.
" " Canada Snake-root	40 min.
" " Cassia,	
" " Lavender (English),	
" " Clove	āā 20 min.
" " Rose Geranium	½ oz.
" " Sandalwood	10 min.
" " Rose	30 "
" " Neroli	5 "
Essence of Jasmin	2 oz.
Tincture of Orris (1 oz. to Oi.)	8 oz.
Compound Tr. of Ambergris	1 oz.
Cologne Spirit	5 pts.
Water, to make	1 gal.

Formulas asked for:

Williams' Indian Pile Ointment.

East India Opium Cure, manufactured in Elizabeth, N. J.

BIBLIOGRAPHY.

NUEVA FARMACOPEA MEXICANA de la Sociedad Farmaceutica de México. Segunda edicion, corregida, aumentada y arreglada por los profesores ALFONSO HERRERA, FRANCISCO GONZALEZ, JOSE M. LASO DE LA VEGA, SEVERIANO PEZEZ Y DR. MANUEL S. SORIANO, miembres de la Comision permanente de Farmacopea de la referida Sociedad, 8vo. México, 1884.

WE have been favored by the Society with an early copy of this interesting and important work, which, while it is not issued under the direct and official authority of government, yet is universally recognized throughout Mexico as the standard authority. The first edition was conceded to be a very thorough and superior work, and the present fully deserves an equal encomium. Its plan of construction and scope differs from most other pharmacopœias in this, that it approaches rather the nature of a dispensatory than that of a pharmacopœia. Yet this is no disadvantage, particularly for a country of such vast extent as Mexico. The text of the present work is printed in solid brevier, two columns on a page, with very clear and handsome type upon excellent, heavy paper.

The work is copyrighted, neither reprint nor translation being permitted. We presume, however, that such quotations or translations of separate articles or paragraphs as may be needed for purposes of scientific discussions, are not included in this restriction.

The contents of the work are as follows:

Pp. i-xxxi, Title. — Copyright. — List of abbreviations.—Report of the Pharmacopœia Commission to the Mexican Pharm. Society, at the presentation of the first edition (1874).—Report of do. to do. for this edition.

Part I.—Preliminary notices; tables of weights and measures; of melting points; of freezing mixtures; thermometrical and areometric tables; of densities of acids; of elements and their oxides, with formulæ and at. weights.

Part II. (pp. 17 to 318) contains:

Pp. 1-110.—Natural products from the vegetable, animal, or mineral kingdom. These and the following divisions are alphabetically arranged, according to their vulgar names (see specimen elsewhere). Then follows the title "Pharmacopœia proper" with the following divisions:

Part I., pp. 111-222. Chemical products.

Part II., pp. 223-318. Pharmaceutical preparations. The subdivision into 8 groups adopted in the first edition has been abandoned in this second, and all articles are in alphabetical order.

Then follows a supplement, pp. 319-321, with a short list of corrections and additions; and finally an appendix, p. 321.

A copious set of indexes is appended, namely, pp. 324-394.

1. General Spanish Index.
2. General French Index.
3. General English Index.
4. General index of words derived from the Aztec, Maya, Mexican, Otomi, Quidié, Tarasco, Totonaco, and Zapoteco idioms.
5. General Latin Index.
6. Index of authors mentioned in the work.

Pp. 395-399. List of Errata.

The work concludes with the following "*Notice*: With the view of keeping our readers abreast of the progress of pharmacy, appendices to this second edition of the New Mexican Pharmacopœia will be published at suitable periods."

INDISCHE PHARMAKOGNOSIE. Von F. A. FLUECKIGER. (Extract from *Archiv d. Pharmacie*, vol. 22, 7.)

THIS paper gives a concise but very complete history of the accessible literature treating of the materia medica of East Indies, from the earliest times to the present day, and concludes with a somewhat detailed review of Dymock's important work, "The Materia Medica of Western India," from which a subsequent edition of the Pharmacographia will be able to cull many interesting details.

Barth (Max). Die Weinanalyse. 8vo, Hamburg. m. 1.20.

Borgman (Eug.). Anleitung zu chem. Analyse des Weins. Mit Vor wort von Fresenius. 8vo, Wiesbaden. m. 3.

Oswald (Wilh.). Lehrbuch der allgemeinen Chemie. 8vo, Leipzig, vol. I. m. 20.

The most complete modern textbook on *general* chemistry, one of the most elaborate chapters of which is that on the nature and properties of *solutions*.

Steinmeyer (H.). Ueber Desinfectionslehre und ihre Anwendung auf die Praxis. 8vo, Braunschweig. m. 0.75

Boettner (Joh.). Die Obstweinbereitung. 2 ed. 8vo, Oranienberg. m. 1.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

Condition Powder. 302,761. — W. George Moore, Lebanon, Ohio. Consists of elecampane root, flaxseed, juniper berries, fenugreek, poplar bark, rosin, mustard, charcoal, licorice root, sulphate of iron, ginger root, sulphate of soda, salt, carbonate of soda, gentian root, black sulphate of antimony, nitrate of potash, coriander seed, valerian root, blood root, lobelia, mandrake root, and alum.

Capsule Filler. 302,777.—Frank J. Reinhold, Detroit, Mich., assignor to Frederick A. Hubel, same place.

Rectal Speculum. 302,846.—Luther Judson Ingersoll, Denver, Col.

Acid-Feeder for Soda-Water Apparatus. 302,850.—Thos. Kendall, San Francisco, Cal.

Salve. 302,875.—Helen C. Wilber, Fayette, Mich. Composed of equal parts of beeswax, balsam fir, mutton tallow, and castile soap, melted together and mixed with pine tar to

the amount of one-half of the entire amount of the other ingredients.

Compressible Piston. 302,921.—Geo. W. Lutz, Indianopolis, Ind. A compressible piston for syringes, wherein the plunger is formed of two elastic cups, mounted on the piston-rod, with their open ends towards each other, and adapted to be compressed by the shortening of the rod, so as to enlarge their diameter.

Inhaler. 302,949. — Robert Skem, Louisville, Ky. An inhaler for medicated vapors, consisting essentially of a shield, or shell-shaped body made of some rigid material, and having a flexible curtain or outer flexible flange, an exterior saliva-cup or liquid-receptacle communicating with the interior of the inhaler-chamber, and provided with inhaling and exhaling valves and with an attachable and detachable cup or receptacle for the liquid to be vaporized.

Cleansing Compound. 302,970. — John B. Ziebach, Pottsville, Pa. Consists of deodorized gasoline, sulphuric ether, alcohol, egg, oil of citronella, and oil of lavender.

Remedy for Hog-Cholera. 302,986.—Robert H. Coons, Marion Co., Mo. Consists of hyposulphite of soda, bicarbonate of soda, sulphate of iron, ginger, mandrake, lime, and Cayenne pepper.

Medical Compound. 302,995.—Albert W. Fuller, Findlay, Ohio. Consists of oil of wintergreen, camphor, sulphuric ether, oil of sassafras, oil of cinnamon, tincture of opium, chloroform, and alcohol.

Machine for Mixing Liquids. 303,080.—Oscar A. Weissenborn, Jersey City, N. J.

Corkscrew. 303,400.—William Redlich, Chicago, Ill.

Method of Hardening or Improving Resins of all kinds. 303,436.—Albert Kissel, Frankfort-on-the-Main, Germany, assignor to C. Zimmer, same place. The conversions of the acids contained in balsams, resins, and their products and compounds or by-products, or in mixtures of resins with other substances, by means of lime or other alkaline earths, into their respective salts.

Box for Holding Dry Powders. 303,582.—Wm. R. Miller, Baltimore, Md. A removable lid combined with a fixed lid underneath the removable one, having an aperture therein, a cover to fit within the said aperture, and a seal fastened over the said cover.

Medicinal Compound. 303,603. — Peter Harberle, Brooklyn, Mo. Compound of balsam of fir, glycerin, balsam of Peru, calamus root, juniper berries, blossoms of yarrow, and alcohol.

Apparatus for Distilling Chloride of Zinc. 303,736.—Augustus Jamieson, Chicago, Ill., assignor to himself and Samuel I. Russell, same place.

Physician's Buggy-Case. 303,958.—Jas. B. Vaughn, St. Louis, Mo., assignor to A. A. Millier, same place. In a physician's buggy case, the combination of the two receptacles, the leather or like cover, secured to and extending over both receptacles, and having a small flexible portion, to form a hinge between them, and the handle, secured to said flexible portion.

Method of obtaining Carbonate of Magnesia. 303,962.—Adolph Wünsche, Hamburg, Germany.

Pessary. 304,006.—Charley E. Kenyon, Chicago, Ill. Assignor to Jason T. Bartlett and Edward E. Butman, both of Boston, Mass.

Manufacture of Alkaline Salts. 304,044.—Sidney Gilchrist and Thomas, London, England.

Can-filling Machine. 304,063. — Volmy Baker, Portland, Me.

Corkscrew. 304,118. — Joseph G. Mooney, Erie, Pa.

"ANYTHING *besides* the directory to-day, sir?"

Brush for Mucilage Bottles. 304,134.—James C. Rosnecht, New York, N. Y.

Apparatus for filling Bottles. 304,219.—John B. Metzger, Williamsport, Pa.

Process of Obtaining Ammonia from Ammonium Sulphate. 304,260. — Eustace Carey, Holbrook Gaskell, Jr., and Ferdinand Hurter, County of Lancaster, Eng.

Corkscrew. 304,299.—William Crabb, Newark, N. J.

Apparatus for Recovering Copperas. 304,333.—Jeremiah Lyons, Pittsburg, Pa.

Composition for Preserving Meats. 304,360.—John Ross, Rocky Hill Station, Ky. Consists of chromic acid, nitrate of potassium, and water.

Kettle or Still. 304,405. — William Biedermann, Newark, N. J.

Clinical Thermometer. 304,896.—John Barry, New York, N. Y. The thermometer-tube having a flat back, a face semicircular, or nearly so, containing the graduations, the mercury-tube nearly equidistant from the front and back, and the white glass behind the mercury.

Manufacture of Fly-Paper. 305,118.—Otto Thum, Grand Rapids, Mich.

Box for Cleansing-Powders. 305,171.—Isaac H. Garson, Rochester, N. Y.

Corkscrew. 305,258.—Martin F. Williams, Bastrop, La.

Antiseptic Compound. 305,423.—Samuel Cabot, Jr., Boston, Mass. Consists of resin dissolved in a solution of an alkaline sulphide, holding in solution crude maphthalin.

Process for the Manufacture of Acetates directly from Metallic Ores. 305,524.—Jean A. Matthieu, Port Leyden, N. Y.

Surgical Case. 305,628.—Max F. W. Ohlemann, Milwaukee, Wis.

Apparatus for Evaporating Alkaline Solutions.—John P. R. Polk, Wilmington, Del., assignor to the Universal Concentrating Co., Camden, N. J.

ITEMS.

Dr. J. Collis Browne, of England, the proprietor of "Chlorodyne," died lately at his home at Mount Albion, in his sixty-seventh year.

Mr. Alexander Boehringer, who lately became bankrupt in his connection with the extensive quinine works in Milan, Italy, has accepted the management of the Mannheim Chemical Works (Magnesia, *et cetera*).

The German Pharmaceutical Association, which met at Dresden on the 3d of September, was attended by about 350 members and numerous visitors. The income for the preceeding year amounted to about $10,500, of which $4,600 went towards the cost of publishing the *Archiv der Pharmacie*—the official organ of the association. This journal is soon to be issued weekly. The next meeting is to be in Königsberg, Prussia.

The Japanese Government has contributed $100,000 for twenty years, without interest, to a new establishment in Tokio, for manufacturing pharmaceutical chemicals. It has also given the lands and erected the necessary buildings. The total capital of of the company is about $200,000. The increase of the tax on "patent medicines" is made to include many other articles and has led to a decrease in imports. Santonin, for example, which is largely in demand, showed a decrease last year of about 20,000 ounces as compared with the preceding year, although the price fell to twenty cents per oz.—or less than the cost of importing it. The consumption of quinine, on the other hand, had increased.

Remedies for Cholera.—M. Vulpian has made a report to the Academy des Sciences upon 250 remedies for cholera, which have been sent by persons desiring to obtain the Bréant prize of 100,000 francs. Some of the discoverers modestly ask that they may be sent to Marseilles in order to test their remedies.—*Med. Record.*

ACCORDING to the *Medical Record,* the truth regarding the coinage of the word *microbe* is, that it was not Sédillot (in 1878) but Professor Pacini (in 1854) who first used it in speaking of a micro-organism of cholera.

PHARMACEUTICAL CALENDAR.—NOVEMBER.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.
Tues. 4th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.
	St. Joseph (Mo.) Pharm. Assoc.
	Rhode Island Chem. and Drug Clerks' Assoc.
Thurs. 6th.	New York Coll. Pharm.—Trustees' Meet.
	Louisville (Ky.) Coll. Pharm.—Pharm. Meet.
	Philadelphia Coll. Pharm.—Alumni Soc. M.
Friday 7th.	Cleveland Pharm. Assoc.—Bi-monthly Meet.
	Amer. Chem. Soc.—University Building, N. Y.
Mon. 10th.	New York City Board of Pharm., 209 E. 23d street, at 3 P.M.—Examination.
Tues. 11th.	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.
Wed. 12th.	Cincinnati Coll. Pharm.—Meet. & Trustees' M.
Thurs. 13th.	Newark (N. J.) Pharm. Assoc.
	Philadelphia Coll. Pharm.—Alumni Pharm. M.
	New York Germ. Apoth. Soc.
	Lancaster Co. (Pa.) Pharm. Assoc.
Tues. 18th.	St. Louis (Mo.) Coll. Pharm.
	St. Joseph (Mo.) Pharm. Assoc.
Friday 21st.	Rhode Island Chem. and Drug Clerks' Assoc.
Sat. 22d.	Last day to enter (55th Session), N. Y. Coll. Pharm.
Tues. 25th.	Boston Druggists' Assoc.
Thurs. 27th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.

American Druggist

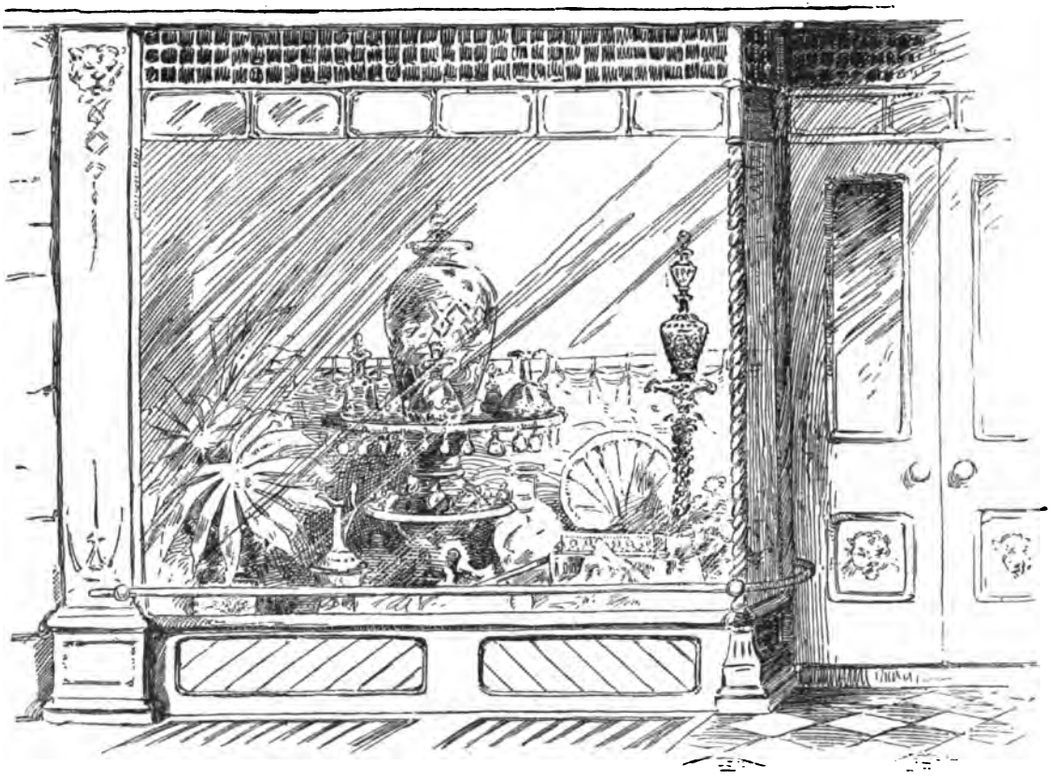
Vol. XIII. No. 12. NEW YORK, DECEMBER, 1884. Whole No. 126.

[Original Communication.]

THE ARTISTIC DECORATION OF DRUG-STORE WINDOWS.

THE increased attention paid to the general decoration of shops and places of business at large is one excellent result of the vigorous movement in favor of popular art-education which has been on foot in the United States during the past ten years. The decoration of shop windows, to the end of properly displaying wares and combining intrinsic attractiveness with judicious advertising of objects for sale, as well as of professional attributes, offers a problem as interesting as any that applied art can suggest. A row of tastefully decorated shop-windows in a conspicuous city street may be regarded as a popular picture-gallery or museum, offering gratuitous pleasure and education to high and low, and at the same time suggesting a thousand wants to the passer-by, which can only be supplied by the business brains behind the brilliant display, and thus acting as a stimulus to trade and production. No care is too great, no thought too profound to be bestowed upon the decoration of shop-windows. In many cases the amount of custom attracted to a shop depends entirely upon the appearance of its windows. The dry-goods firms realize this truth as keenly as any. Most of them keep in their employ what are known as window-dressers, whose specialty is the decoration of windows. Even the largest establishments alter the arrangement of their windows every day or two, and display some of their choicest fabrics to the best practical and the best artistic advantage, knowing that the return in dollars and cents will more than repay them for the pains taken to attract custom. Not so with the average drug-store. The ordinary druggist is apt to content himself, in the matter of window-decoration, with a phalanx of cod-liver oil bottles, flanked by some ancient sponges and a number of superannuated chest protectors, the whole covered with dust and trampled beneath the feet of co horts of flies. He arranges his window, say on New-Year's day, and with a few minor alterations, it remains untouched until the following New-Year's day. There is no doubt that American drug-stores are a long way behind other shops in the matter of window-decoration. Even in the principal thoroughfares of New York, the drug-store windows are not equal in attractiveness to the other windows along the line of fashionable trade. The prevailing tone of these drug-store windows seems to be that of indifference or carelessness. One feels that the druggist either considers the decoration of his windows beneath the dignity of his profession, or else thinks that it is really not worth his while, practically, to trouble himself about such a minor affair as artistic detail of arrangement with regard to his stock of goods. Therein he makes a mistake. and in the course of time his account-books will give him a well-merited lesson on the subject.

Many persons are frightened by the use of the word "artistic," probably because it is so shamefully misused and abused by pompous and pretentious writers. Good art, like everything else that is genuinely good, is the simplest thing in the world. It is the direct outgrowth of nature, and one of its most important elements is common sense. In the matter of window-decorations, as in many other cases, cleanliness may be recommended as a primary essential of artistic treatment. The brass ledges which inclose the windows of most city drug stores may be regarded as forming the frame of a picture. The more harmonious the relation between the frame and the picture, the better the impression produced on the spectator. Among artists, dirt is sometimes considered to give tone to pictures and picture-frames. Dirt and dinginess are not, however, desirable on the brasses of druggists' windows, or on the windows themselves. These brasses should be polished until they shine like gold in the brilliant American sun-light. Observation proves that even the best city druggist frequently neglects this artistic essential —cleanliness. A druggist's window



should be primarily bright, cheerful, and attractive. The drug-store is apt to be associated in the public mind with disease and death, and everything should be done to weaken the necessarily disagreeable impression produced by the sight of a place connected with the physical trials of humanity. Every drug-store contains the elements necessary to the artistic decoration of its windows, but few druggists know how to combine or select the materials at hand. Every drug-store owns jars and pots of various sizes, pure and correct in general form and style, though intended solely for practical uses. They are quite as artistic as those sold confessedly for decorative purposes by manufacturers of drug-store goods; but only a well-trained taste would realize their superiority, and make capital of them accordingly. Some of the choicest bits of pottery to be

found in American *bric-à-brac* collections are nothing but the ordinary jars belonging to the village apothecaries of the Old World, despised by their original owners because of the humble ends they served.

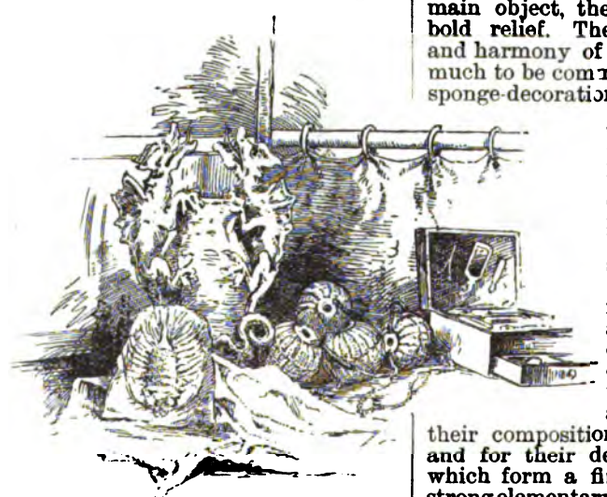
In arranging a drug-store window, there are two elements to be considered, the artistic and the practical; the first must attract and please the passer-by, the second must lead him to purchase or to think of purchasing.

Let us first consider the artistic element. It is agreed among the highest authorities that the best art is also the simplest, and the most universally intelligible. No druggist need fear that by observing the principles of good

artistic decoration, he will overshoot his mark and repel his public instead of attracting it. The pictorial instinct is strong in every human breast. The love of color and the love of form, in some shape or other, enters into the composition of each individual intelligence. The window should be considered as the canvas on which the scheme of the picture is to be first outlined and then painted in, in broad masses, the details being left until the last. Color, form, composition of line and masses, must all be considered in the construction of a scheme of decoration. This statement sounds formidable, but is in reality perfectly simple. In color, every drug-store window should be rich. A love of color is characteristic of even the most undeveloped artistic sense, and brilliancy of color can be appreciated by every passer-by. The large jars of colored water which form the trade mark of the profession, and are seen in every drug-store window as a matter of conventionality, are, in themselves, fine color decorations. The same cannot always be said of them as to form. It is a very easy matter to take the solid colors offered by these jars, ruby, topaz, violet, or emerald green, for the key notes of the color-scheme, or, on the other hand, to form with the liquids such chromatic effects as shall be in harmony with the other objects of the decorative arrangement. One excellent decorative quality of these jars is the effect of broad masses of color which they present. Placed one above the other, at the sides of the windows, they "compose," as artists say, very well. When in this position, they should, if possible, be balanced by a solid mass of objects in the centre of the composition, something more than half as high as the lines formed by the jars. If the window be large, the treatment should be broad, and large objects should form the foundation of the decorative scheme; if small, the objects should be smaller and more attention should be paid to detail. Avoid placing two conspicuous objects of a kind in juxtaposition; beware of rows of things; cultivate a holy horror of successions of narrow bottles forming straight lines, either horizontally or vertically. A yearning for bottles in their windows is a common failing among druggists. These bottles are generally of the meanest, most utilitarian, and most medicinal order. No self-respecting person will look twice at a window that contains only a hundred or more repulsive phials of "Dr. Slow's Specific;" neither is the spectacle sufficiently enticing to warrant a prolonged gaze.

Let the druggist choose from the resources of his store those objects which seem to him most artistic and decorative from his own standpoint. Let him follow his own instincts in the matter, without distrust of his personal ability. Every human being is endowed with a certain amount of artistic instinct which simply requires developing, and the effort to use it is of material assistance in the process of evolution. The next step is to consider these objects carefully in their elementary relations of form and color, and to dispose of them to the best artistic and practical advantage, according to the primary canons of composition.

A good example of artistic window decoration is offered by the small illustration, showing a bronze vase, a geological specimen placed against a yellow chamois skin, some South American water-bottles, and a toilet-case. If the latter were left out, there would be no fault to find with the composition. The other objects form an admirably arranged group, the idea of renaissance grotesqueness in decoration being skilfully, though probably unconsciously, used as the keynote of the group. It is so good a bit of decoration, both as to form and color, that the incongruity of the toilet-case in idea and composition of line is made all the more apparent. The group should end with the last water-bottle. This illustration does not solve the problem of arranging every-day wares artistically. On the contrary, it distinctly separates the two ideas. It offers an artistic group composed of practically irrelevant objects, and makes the toilet-case, which represents the practical elements of decoration, a mere afterthought.



Floral accessories are always valuable in decoration, and nowhere are they more appropriate than in the adornment of drug-store windows. Large-leaved tropical plants, ferns, palms, and flowering shrubs may be used to advantage in a decorative scheme of this kind. At the present season, blossoming chrysanthemums in all shades of red and yellow could be combined in rich and harmonious effects of color, repeating in an admirable manner the leading chromatic ideas of the druggists' wares or colored jars. The cost of a few plants is trifling in comparison with the artistic and practical value of the results produced by their use. A fine ivy in a handsome jar forms a highly decorative accessory, and one that can be altered in arrangement to suit the disposition of the solid objects. In country neighborhoods, every garden offers a wealth of material from which the druggist may choose what best suits his purpose. Every meadow and bit of woodland has a thousand decorative floral forms awaiting the appreciative eye and hand. The simple, common flowers are as decorative as exotics and much more lasting. When flowers are not procurable, some green growth or other can always be found to take their place, either in city or country. Anything is better than the use of artificial flowers or plants. In every kind of artistic decoration, the natural forms are always the purest, and consequently the best adapted to the purpose. A mass of sponges, simply thrown together without apparent intention, or hanging in garlands about a window in such a way as to furnish gradations of tone and color and agreeable combinations of form, constitutes a good simple scheme of decoration. It symbolizes the higher side of the druggists' calling, and carries the mind of the spectator back to the primitive relations of humanity with nature. Then, too, a sponge, in its tangible aspect, is an essentially decorative object. The opposite illustration of a window decorated with sponges offers an excellent model. The group is well composed. The mass of sponge on the rock forms the keynote of the scheme. The arrangement of the strings of sponges used as accessories, is effective and in good artistic proportion. The toilet articles at the back carry out the significance of the idea, and in the matter of line and mass are well adapted to throwing the main object, the large sponge, into bold relief. The simplicity, breadth, and harmony of this composition are much to be commended. This idea of sponge-decoration may be applied in many ways and may be adapted to any kind or shape of window, with the certainty of producing a satisfactory, because natural and simple, result.

Large branches and masses of coral are also desirable as window decorations because they represent the natural forms and are valuable both for their composition of line and mass, and for their delicate neutral tints, which form a fine contrast with the strong elementary colors generally seen in druggists' windows. The simpler, broader, and more striking the general effect of the window, the better the impression upon the mind of the casual passer-by and the greater the likelihood that he will stop and look in and allow his imagination to oscillate between the possibilities of his purse and the seductions of the artfully arranged objects before him.

We come now to the other point to be considered in connection with the composition of a window, namely, the practical idea of displaying objects as wares, to the end both of selling them and adding to the general reputation and professional prestige of the druggist. It is perfectly possible to com-

bine the artistic idea of decoration with the practical idea of utility by the exercise of a little thought. At no time is this more feasible than at the present, when the approach of the holidays leads druggists to wish to exhibit the wares appropriate to the season in the manner most likely to lead to their sale. All sorts of elegant trifles, such as people buy for holiday gifts, lend themselves readily to the exigencies of decoration. Handsome cut-glass phials, cases of perfume, cosmetics, toilet-goods, may all be appropriately combined with more practical objects. A drug-store is not a bazar, but all goods bearing in any way upon the care of health, may legitimately be displayed with an eye to commercial interests. At the holiday season, the æsthetic side of the subject of physical well-being should come uppermost. The druggist should then bestow the same attention upon the arrangement of his windows that his neighbors do upon theirs. Only by so doing can he hope to rival with them and keep his business interests on a satisfactory footing.

An admirable design for a holiday arrangement of a druggist's window is to be found in an illustration at the head of this article, in which the artistic form is everything that is desirable, and the composition is such as to display the goods to the best practical advantage. This druggist has had the good taste to balance the jar at the right with a mass of palms at the left, instead of with another jar, as a person of inferior artistic instincts would certainly have done. The forms of the palms, again, are repeated in the large jar in the middle and the round object on the right. The numerous small articles, representing details of composition, are arranged in a most skilful manner. The whole impression of the window is that of richness, brilliancy, good taste, and the holiday magnificence proper to the season. From a distance, such a window as this would sparkle in the winter sun like a great jewel, and invite attention from far and near. The materials that compose it may be either of the richest or the humblest, but the effect they produce is that of a brilliant street-spectacle.

Another example of arrangement of holiday goods is seen in the illustration which has for its principal object a large clock of a tasteful character, made to simulate a trophy of armor. This is very modern and decorative, but at the same time so important a factor in the scheme of decorative composition as to require corresponding accessories. Small knick-knacks, pretty little perfume bottles, colored plush boxes, and similar pleasing trifles, jars of flowers and porcelain ornaments are not in harmony with the clock, being of too light and frivolous a character, as well as too small in bulk to act as satisfactory accessories. They are out of place among battle-axes and similar objects that form the clock. Decoration does not mean simply taking objects which are individually decorative, and throwing them together haphazard. It means bringing objects together in their proper relations of color, form, and other attributes. The first principle of art is selection, and this applies equally to ambitious easel art and to the minor industrial forms of decorative art. It is not necessary for a druggist, in order to make his windows popular at the holiday season, to lay in a supply of photographic accessories for decorative purposes, or to ruin himself in imitation antiques that nobody will buy of him. Let him choose pretty, tasteful goods for which there is always a market, and display them to the best advantage, observing the artistic unities carefully, adapting his scheme to the size and shape of his window, and above all things avoiding obtrusiveness which is as vulgar in the decoration of a shop window as in the dress of a woman. Obtrusiveness does not attract in the higher sense; it repels.

A druggist may, it is true, carry on his business as a dispenser of medicines without regard to the appearance of his windows, because so long as there are sick people in the world the drug business must flourish. But half the dealings of the modern American druggist lie with healthy people, in the full glow of animal spirits, and such people are not likely to enter an establishment the windows of which suggest the charnel house. As many persons go into a city drug-store in pursuit of the mild intoxication of soda water, in the course of a day, as go to have prescriptions put up for sick relatives. Toilet articles alone call into every drug-store a large amount of the custom that falls to its share. The more seductive the display of such goods in the windows, the greater is likely to be the demand for them in the store.

Suggestiveness is another element that should be considered in the decoration of windows, both artistically and practically. The druggist should, if possible, so contrive to arrange his decorative scheme as to suggest the different goods that he is able to supply to the public, at least in an elmentary fashion. The simplest scheme of decoration which combines in itself the goods the druggist has for sale in his store, so long as it is in correct taste, is far more valuable than a pretentious adornment that has no relation whatever with the calling of the druggist or the material that forms his stock-in-trade. Genuineness and sincerity are as important in the artistic decoration of drug-store windows as they are in every other form of art and life.

To distinguish Butterine.

THE following simple method has been suggested for approximately judging of the purity of a specimen of butter.

Melt the butter, and then cool it as rapidly as possible by means of some ice-cylinder put into it. Lard, which is a copious constituent of butterine, will sink to the bottom and any genuine butter present will rise, while there will be a distinctly visible zone or line of contact between the two.

[ORIGINAL COMMUNICATION.]

OIL OF CADE.*

BY ROBERT AMORY, M.D., OF BOSTON.

WHEN, a few years ago, it was suggested that oil of cade (*oleum cadinum; oleum cadi; huile de cade*) should be introduced in the U. S. Pharmacopœia, objection was offered that its composition was of too indefinite a character to have a proper place among official or officinal drugs; it was therefore not introduced into the sixth decennial revision. The chairman of the committee of revision, Dr. Charles Rice, of New York, has, however, taken a lively interest in endeavoring to discover the origin and mode of preparation of this drug, which has, within the last fifteen years, been so extensively employed by a certain class of medical practitioners.

Flückiger and Hanbury give the following brief account of oil of cade (in *Pharmacographia*, 2d ed., p. 693): "Oil of cade is a tar originally obtained by the destructive distillation of the wood of the cade, *Juniperus Oxycedrus* L., a shrub or a small tree, native of the countries bordering the Mediterranean. It was for centuries used in the south of France as an external remedy, chiefly for domestic animals, but had fallen into complete oblivion† until ten years ago, when it began to be prescribed in skin complaints. The oil of cade now in use is transparent and devoid of crystals, though somewhat thinner than Swedish tar; it closely resembles it in other respects. It is imported from the continent [into England], but where made and from what wood, we know not. *Huile de cade* is mentioned by Olivier de Serres, a celebrated French writer on agriculture of the 16th century: it is named by Parkinson, 1640; also by Tomet, in whose time (1694) it was rarely genuine, common tar being sold in its place."

While in Europe last winter, I received a request from Dr. Rice that I should personally examine the manufacture of the so-called oil of cade with a view of clearing up doubtful points which might be of use to our committee. And for this purpose he furnished me with a memorandum containing the salient points of what was known about the article up to that time, and of which the following is an abstract:

"Some years ago I was informed by one of the leading chemical manufacturers of Berlin, who had dealt in oil of cade for many years, that it had been chiefly in demand for the Russian market, until it began to be used by dermatologists, when its use gradually extended to other countries. I also learned that it was supplied to him by Sagnier et Fils, or by Vègre, Fiedler et Cie., of Nimes, France. My informant wrote me that the article was said to be still prepared from the wood of *Juniperus Oxycedrus*, and that he had heard no complaints about its quality or uniformity ever since he could remember. I next directed my inquiries to the houses in Nimes, from whom I obtained, through an obliging friend, the following information: Oil of cade is made in numerous localities over a large district extending from the department of Gard to that of Lozère and the Var—from the juniper with red berries (*le cade* or *le cadrier*), and not from *Juniperus communis* L., as has sometimes been supposed, and all, or most of the product, amounting annually to between 35,000 and 40,000 lbs., was sent to Nimes and passed through their hands. The oil is made all the year round, in furnaces specially constructed for it. In these furnaces, which resemble potters' furnaces, the wood is piled up in small pieces, the furnace is

* Paper read before the Suffolk District Medical Society, Mass.

† This is not quite true, inasmuch as mention is made of it, as an external remedy, in various medical journals or works, for many years back, up to the time when Hebra advocated its use.

hermetically closed, and then heated during a fixed time. Finally the heat is withdrawn and the oil (tar) removed. I was also informed that there are some houses in Marseilles who *make* and sell "*huile de cade;*" but this is supposed to be factitious, being mixed with or entirely replaced by ordinary tar from pine. As the article is prepared in so many different localities over a large district, and by so many different persons, all of whom appear to work on a small scale, it is practically impossible to control the doings of each single producer, so as to ascertain whether he uses any other wood but that obtained from the *cadrier*. Yet the well-known conservatism and obstinate adherence to old customs among the country people of the continent, as well as the abundance of the new material, partially insure against wilful substitution, though custom may have sanctioned the latter in certain localities.

"Shortly after the drug was reintroduced into medical practice, I availed myself of the friendly services of a correspondent, and obtained a sample of the oil of cade sold by the Kaiserl.-Königl. Hofapotheke in Vienna; which claimed to have the true, genuine article. This was sold at a very high price, but the sample which I received did not appear to differ in any respect from that which I had seen before or received from other sources. The experiments of the Vienna dermatologists, therefore, were probably all based on the usual commercial article.

"While corresponding on this subject with various persons abroad, I learned of the existence of an allied product in Transylvania, through Mathias Rosznyay in Arad, Hungary. This gentleman informed me that *Juniperus Oxycedrus* L. occurs in the Comitate Marmarosch, but that no tar was made from it in Hungary, and that all "oil of cade" used by Hungarian apothecaries was obtained from Paris. In Transylvania, however, about 4,000 or 5,000 kilos of a so-called oil of cade was annually made by Mr. Szavá Gerő in Brassó, all of which was sold for exportation to some place unknown to the manufacturer. This oil of cade, however, is made from the young shoots of *Abies excelsa* DC. (*Pinus Abies* L.) or *Larix Europœa* DC. (*Pinus Larix* L.), by distilling the dry wood in large iron retorts. At first, a volatile (afterwards solidifying), resinous substance is produced (so the correspondent states), which can be used with great advantage for tar-soap, since it does not render the latter softer in consistence, as is the case with similar products of different origin. Later on, the "oleum cadinum" passes over, and is caught in a separate receiver. [The correspondent speaks of it distinctly as obtained by distillation; in the case of oil of cade, the process is no doubt a "*destillatio per descensum*" such as is employed when common tar is obtained.] As thus caught, it is still mixed with some resin and some liquid consisting of pyroligneous acid and allied substances, so that it separates, on standing, into several layers, the upper one a transparent yellowish liquid, the lower one a dark kind of tar. A sample accompanied the report."

Having thus obtained from Dr. Rice's notes sufficient information to direct my inquiry to definite persons and localities, I visited, during my sojourn at Nîmes, some of the large manufacturing druggists, among them Mr. Sagnier, who gave me in detail all one would care to know of the methods of manufacture. With this information he also furnished me with a specimen twig brought at his request by a peasant from Var, who sold him the cade oil. This twig was taken from the tree or shrub which yields the commercial oil of cade and was accompanied by a specimen of the oil. The process by which this is obtained is as follows:

The dry, not sappy, portions of the wood of *Juniperus Oxycedrus* L., as well as the roots, leaves, and twigs, are gathered at all seasons of the year by the peasants in the department of the Var, in the South of France, and chiefly among the hills and in the wild country. These are all cut up into small pieces, and carefully laid one upon another so as to facilitate free combustion, a fire is kindled, the whole is then covered up with earth so as to hermetically seal it from the air, and the products of the dry distillation *per descensum* rudely conveyed into wooden buckets or barrels. This product resembles thin tar, and is carried by the peasants on their own or their donkeys' backs down to the settlements, and generally into Nîmes or Toulon. The drug-merchants sell this tar, without purification, just as they receive it from the peasants. I could not personally visit the hill-country where this rude form of distillation is practised, because it was several days' journey on foot or on donkey's back; hence I am forced to give the information on hearsay. However, I saw the peasants who conducted the distillation and talked with them. Mr. Sagnier, Jr., informed me that during his boyhood, about thirty-five years ago, the peasants in the vicinity of Nîmes used to carry on this work, but latterly were obliged to leave it to others living more remote, because they had destroyed so many of the trees that it took too much time to collect the wood necessary for any large amount of distillation. Mr. Sagnier, the father, had seen many of these distilleries, and he described the process as being very simple and rude. Toulon is so much nearer to the place where these trees are now mostly found that the peasants traded most generally with that city at the present time. I brought with me to this country a small branch of the tree from which this distillation is conducted, and am informed by Dr. Rice that it is from *Juniperus Oxycedrus* L., but the specimen is now so dry that it would hardly bear transportation. There is reason to believe, however, that other allied species of *Juniperus* are sometimes utilized by the peasants, either by accident or design, for the same purpose; that the common savin (*Juniperus Sabina* L.) is, or at least has been, among these may be inferred from some specimens of the *cadrier* in the possession of Dr. Rice. The difference in shape and construction of leaves, etc., between the savin on the one hand, and the common juniper or the *Juniperus Oxycedrus* on the other, makes it highly improbable that the substitution is due to accident. Whether other species are also used, such as have been reported by various writers, *viz.*: *Juniperus phœnicea* L., *J. thurifera* L., etc. (the latter is said to be rare in Southern France, but more common in Spain and Portugal), could only be ascertained by a prolonged personal inquiry over the whole district where the product is made, and this does not appear to be of so great value as to justify the expenditure of so much time and money specially for this purpose.

There has been an apparent mystery regarding oil of cade, because it could only be directly purchased through Paris, Nîmes, Toulon, or Marseilles; its centre of commercial distribution being at Nîmes. Hebra's reintroduction of its use as a remedy in cutaneous diseases naturally led to its more general introduction into commerce all over the civilized world, and hence it can be found in the shops of most of the druggists in large cities. Yet there is no certainty as to its being a definite pharmaceutical article, the purity of which can be tested by physical or chemical means. Physicians, therefore, are apt to rely upon their individual experience as to the source from which they desire their patients to obtain their supply. The mystery, if any exists in regard to the distribution of oil of cade from Nîmes as a central depôt, is simply due to its historical relations. It was first used as a parasiticide in that city and its environs, in a wash for sheep who had the itch (*la gale*). It was found useful in the destruction of the sheep-tick and other parasites, and did not injure the sheep or their wool. Its empirical use in diseases of the human skin sprang from its success with sheep-skin diseases. Its medicinal use is not modern, since it is very clearly described as early as the first century, by Dioscorides (see Kühn's edition, I., 105). And it has frequently been employed or recommended before Hebra's time, in the treatment of skin diseases, as, for instance, by Larsen (*Hosp. Medelelser* III., No. 3), Giber (*Gaz. d. Hôp.*, 1857, 93. *Bull. de Thér.*, 1858, Aug.), H. van Holsbeck (*Presse Méd.*, 1857, 28), and others.

It is evidently a mixed, tarry product, and is received in this country probably exactly of the same character as that which is distilled by the French peasants who call it *huile de cade*, from their common name of the small tree from which it is derived, viz., the *Cedrier* or *Cadrier* in their dialect. I saw the trees growing near the Pont du Gard, which is about half-way between Avignon and Nîmes; the red berries had fallen from the tree to the ground and looked about the size of small cranberries, but of a lighter shade of red; they had thin skins, and were soft and pulpy. The peasants who lived near Pont du Gard described the process of distillation as being the same which was communicated to me by Mr. Sagnier of Nîmes.

The amount of oil of cade sold at Nîmes does not represent that which is manufactured, since there is a large amount locally used in the department of the Var for sheep-washing. The medicinal virtue of cade oil or tar may be different from that of other tars, but probably this matter is better known to dermatologists than to the general practitioners.

The price of this tar is very low, so that, as Mr. Sagnier said, there is probably no profit in making an unadulterated substitute. It costs at Nîmes from 1 to 2 francs the kilogramme, that is, about 10 to 20 cents a pound, which is but little encouragement towards making any tarry substitute for the crude nasty stuff originally sold by the Nîmes merchants for the purpose of destroying sheep vermin and skin diseases consequent to these or to some other parasitic origin.

Deposit of Native Saltpeter.

To the East of Cochabama, near the village of Arane, in Bolivia, there exists an immense deposit of saltpeter, which has the following composition, according to Sacc:

Nitrate of Potassium	60.7
Borax	30.7
Other Salts and Water	0.
Organic Matter	8.6
	100.0

Neutral Salicylate of Atropine.

SALICYLATE of atropine is considered to be the most effective and quickly acting of all atropine salts, provided it is pure and perfectly neutral. It may be prepared in the following manner: 23 parts of atropine are dissolved at a very gentle heat in pure alcohol, and enough salicylic acid (about 18 parts) gradually added until the solution is neutral, which is to be ascertained by repeated testing with litmus paper. The solution is now evaporated, on the water-bath, to a jelly, in which form it has an amber color. Finally it is completely dried in a drying oven. The resulting amorphous salt must be kept in securely stopped vials, since it is very deliquescent. If carefully kept, it keeps well; in solution, however, it is not very stable, since a copious formation of fungi occurs, usually in a few days. For this reason its solution should be prepared freshly when wanted.—*Pharm. Post.*

Pharmaceutical Stills and Vapor Condensers.*

ONE of the most desirable features essential to the further advancement of pharmacy, is that every pharmacist should at least make the most, if not all of his galenical preparations and many of his chemicals. Why this is now so seldom done, seems to depend upon the respective cost of production at our own laboratories and that of purchase from the various manufacturers. That the manufacturer, by large purchases, obtains a material reduction in the price of the raw material, there is no doubt, but that the difference in price between a few pounds and a bale or barrel is not near that of the relative cost of production and purchase is almost certain.

That the wholesale manufacturer's expenses are more than the pharmacist's, in proportion to the quantity produced, even admitting that the same care is exercised, and an equally reliable article made by them, is also without question. The liberal advertising done by the former to create a market for his goods, and the skilled labor employed by him must all be paid from the margin on his wares, as it is obvious that, no matter how large the quantity is, goods cannot be sold below the cost of production without loss, or below a certain limit if a standard of quality is to be observed.

The supply for crude drugs in limited quantities is facilitated, at the present day, to such an extent that there is little excuse for any pharmacist to buy his fluid or solid extracts, providing that he has the necessary apparatus for recovering the menstruum or solvent employed. With proper means for doing so, no more than ten per cent of alcohol ought to be lost in their manufacture, and with that loss alone we cannot understand why a pharmacist should not more than compete with the wholesale manufacturer.

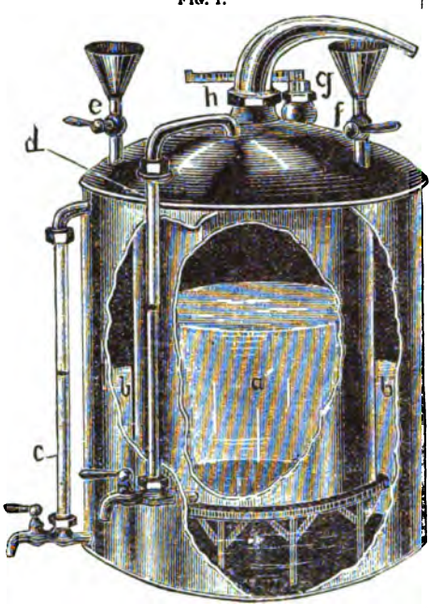
Take fluid extract of ergot, for instance, and employ the very best Spanish ergot, at a cost of about thirty-five cents per pound (which is probably not always done by wholesale manufacturers), and grind it in an ordinary drug-mill, which is or ought to be in every drug-store. The grinding, done at leisure hours by the available help, without extra expense, as well as passing through a suitable sieve, offers an advantage over the manufacturer. The menstruum of the reserve liquid, amounting to 85 per cent of the final result, and consisting of 3 parts of alcohol and 4 of water, would cost only about 14 cents, and the evaporated remainder contain no alcohol. If the residual ergot of the percolator is mixed with water and expressed, and the alcohol in the expressed liquid recovered by distillation, the loss of alcohol would certainly be very small, and not amount to more than 10 cents per pound at the utmost. If the amount for ergot be set down at 35 cents, alcohol in extract at 14, loss at 10, and gas or oil for heating at 10, the cost of a reliable article can be computed at 69 cents per pound. What my *confrères* pay for it in the market I need not state here.

That the precipitated, purified aqueous extract of ergot, usually sold under the name of ergotin, can be made by every pharmacist, with recovery of the alcohol employed, at less than one-half of the lowest wholesale price now asked, I could demonstrate equally as well. Most, if not all of the alcoholic and semi-alcoholic extracts can be prepared even in small quantities in the pharmaceutical laboratory with equal advantage and economy, as well as the new abstracts of the Pharmacopœia. The great desideratum which has always presented itself to me in the work of the laboratory, has been that of a proper distilling apparatus.

The recovery of volatile solvents is an easy matter in laboratories with steam supply and properly-jacketed stills and evaporating-pans; but without these, the alternative remains either to distil over the open fire, and thereby endanger the product, or by placing a small still in hot or boiling water, conduct the process in a tedious and imperfect manner.

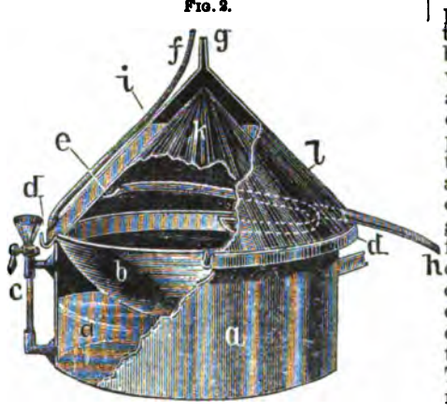
To overcome this defect, and at once to have a distilling apparatus for suitable productiveness, which admits of distillation with or without pressure, I had constructed of tinned copper and medium weight the apparatus I here exhibit, which was made after a design executed by one of my assistants, Mr. J. Robert Moechel.

FIG. 1.



It will be seen by the cut, showing both the interior and exterior, that it is of cylindrical shape, about two feet in height, that it consists of two cylinders, one inside of the other, and that both are attached to the convex top; the inner cylinder is mounted on a rest to prevent its weight from dragging down the common top. This inner cylinder contains the menstruum, *a*, to be distilled, or the alcohol to be recovered, which can be introduced at any time through the funnel, *f*. At-

FIG. 2.



tached to it from the top and reaching to its bottom is the gauge, *d*, through which the height of its contents, *a*, is seen. At the bottom of the gauge, and connected with it, is a faucet to draw the contents off at any time. The outer cylinder, which serves both as a joint steam and water bath, contains water, *b*, connected with the water-gauge, *c*, which indicates the volume contained in it; a faucet attached to the lower end of it serves to draw off the water as needed. Attached to the top of the outer cylinder is a steam-valve, *g*, by which, if lifted, the steam may escape without pressure, or if weighted, may be made to assume any desired pressure. The inner cylinder connects at *h*, by a screw-joint and gum-packing, with a bent pipe, which in turn can be attached to a large copper Liebig's condenser, such as I here exhibit, or instead, to one of Prof. Remington's condensors, if so desired.

This apparatus is especially useful for recovering the alcohol from dilute menstrua, and for concentrating alcohol largely diluted for purification, as well as for operating with solvents of larger volume, as in the manufacture of resin of podophyllum, berberine and hydrastine, apiol, etc. The solvent in these processes contained in the inner cylinder, and consisting of about five gallons of stronger alcohol, can be recovered in sufficient time to continue percolation with it, making the process almost continuous, and admitting of a twenty or thirty-gallon exhaust to be effected with only about five gallons of menstruum above that absorbed by the substance to be exhausted.

One of the disadvantages of this apparatus is the difficulty of cleansing it after concentrating the liquid to be distilled to a certain degree, and, therefore, the impossibility of conducting the evaporation to the degree desired. The heating necessary to drive over the vapors, which can only be accomplished at the boiling point of the solvent, is, in many cases, especially in aromatic extracts and those containing volatile oils or principles, a great disadvantage, while, if the evaporation is completed in some other flat vessel, considerable loss of solvent is experienced—which, if alcohol, ether, chloroform, or carbon bisulphide are employed—interferes greatly with the cost of the product.

The most suitable apparatus for recovering all the solvent and one admitting of rapid evaporation without loss to dryness of a solid, or the desired density of the residual evaporate of a fluid extract, is undoubtedly the "Hood Vapor Condenser," which has been in use for some time. It has several claimants for the credit of its origin, but I have not been able satisfactorily to attribute it to any one of them. It is one of the most useful, if not the most useful solvent reclaimer of any in use in the pharmaceutical laboratory. Its principle of projecting hot vapor against a cooled slanting surface, from which the condensed liquid is recovered by a gully (or gutter), is certainly not new, but its application offers advantages even beyond that principle. The vapor condensing in the hood over the evaporating-dish, on being condensed, presents a vacuum which greatly facilitates evaporation and lowers the boiling point of the liquid in it. I had for some time employed the hood condenser, simply fitted loosely on the evaporating-dish, and with most excellent results in its operation, but found that with energetic ebullition the vapors would be forced out between dish and hood, occasioning, when ether, benzin, and carbon bisulphide were employed, dangerous explosions; while, in the evaporation of alcohol and chloroform, the loss sustained was considerable. This caused me to adjust it in a manner which I will demonstrate in the apparatus here exhibited.

To a water-bath, *a*, containing water, *a'*, fitted with a water-gauge *c*, and faucet to admit turning off to keep the steam, or by turning on to let steam escape, or to add water as needed, and having proper handles to facilitate its removal, is fitted a tinned copper evaporating dish, *b*, as tightly as possible to prevent the escape of steam at the sides. The evaporating dish has on its sides a groove, *d*, as a receptacle for a flange from the outside cone of the condensing hood. The hood itself is, like the rest of the apparatus, made

* By L. WOLFF, M.D., in *Amer. Jour. of Pharm.*

of light-weight tinned copper, and consists of two cones placed parallel within each other, about one inch apart. The two cones are closed squarely at the bottom, the outer, *l*, projecting and dipping down to form the flange for the water-joint to fit into the groove heretofore mentioned. Running from the top on the outside of the outer cone is a supply pipe, *f*, for cold water, which enters into the space between the two at the bottom of the outside ones. From the top of the outer cone extends a pipe of the same diameter as the former to admit the escape of the water at *g*. The water for cooling is conducted to *f* by a rubber tube from a hydrant or reservoir, and allowed to flow off by a tube again into a sink or receptacle, or, as I have often done when sufficiently cool, into another similar apparatus for further condensing purposes. When in operation, the vapors arising from the evaporating dish will be condensed on the inner surface of the cone, *k*, and by its slant will run into the gulley, *e*, which is in turn placed slanting into the cone to allow the flowing off of the condensed liquid through the tube *h*. The water-joint, *d*, may be filled with water, but better, according to the solvent to be recovered, with oil or glycerin, and it makes the closure absolute and air-tight, without either

FIG. 3.

the danger of escaping vapor and loss, or of explosion. The hood can easily be lifted to inspect the contents of the dish, or to replenish the same, if necessary, doing away with the screws, flanges, and packing usually employed. To admit of proper operation of the water-joint, however, care must be had to make the escape-pipe, *h*, of the proper diameter, and give it sufficient dip to cause the condensed liquid to flow off readily, for with a small tube, as I had at first, and horizontally placed, I now found that the filling of the pipe with liquid and the condensation of vapor in the hood caused a vacuum which rapidly sucked up the liquid from the water-joint. Care must also be observed that the apparatus should be perfectly level; the liquid in the water-joint will give the best indication for that purpose.

An apparatus, such as I have exhibited, will answer all the purposes pointed out, both as an evaporator and a still. The heat necessary for its operation may be had either from a gas-stove, or, where gas is not at hand, and even with greater economy, by a coal-oil stove, or it may readily be operated by placing it on the top of an ordinary kitchen range or stove. There is absolutely no danger from explosion, and the recovered liquid, if highly inflammable, may be led away by a proper tube from any dangerous proximity of the flames. The fact that the evaporating dish is made of copper will not interfere with the evaporation of acid liquids, as these can be placed in porcelain dishes inside of it without interfering with the results.

The advantages of this apparatus are its simplicity and small expense, the rapidity with which evaporation is effected by it, its adaptability to any scale, the fact that in it evaporation may be conducted to the very end, and the ease with which residua may be removed and the apparatus itself be cleaned. Its work as a still is fully equal and greater than an ordinary one of its size, while it is perhaps the only apparatus by which vapor can be condensed at a comparatively low temperature and without boiling of the contents. For the manufacture of the fluid and solid extracts, oleoresins, abstracts, etc., on a small scale, I certainly know of no more suitable apparatus and one more adapted to the wants of the pharmacist. It might still further be improved by the addition of a suitable thermometer, inserted through a cork in a proper opening in the hood, but I think for ordinary purposes it would be superfluous.

I offer the description of the above distilling apparatus, not with any special claim for originality or novelty, but simply as adaptations to the needs of the pharmaceutical laboratory; as such as I have found them of great practical value, and if their employment aid to the desirable end of placing the pharmacist in his proper domain as a producer rather than a small dealer, the object of this paper will be fully attained.

[Another form of hood-condenser was described in this journal in January, 1877, an illustration of which is in Fig. 3. The funnel *f* serves for introducing cold water; the overflow being through the pipe *g*. The vapors condensed against the inside of the hood are collected by the gutter *h*, and escape by the discharge-pipe *c*. This form of apparatus is especially adapted to be used with a water-bath. —ED. AM. DRUG.]

The Preparation of Ointment of Salicylic Acid.

BALMANNO SQUIRE says that ointments made by *dissolving* their ingredients in *hot* lard are far more efficacious than when they are merely *mixed* with *cold* lard. In the case of chrysophanic ointment as well as salicylic ointment, the ointment should also be well mixed with a mortar and pestle during the process of cooling. Experiments have determined that at the temperature of the water-bath, hot lard will take up thirty grains of salicylic acid to the ounce, which is about the proportion in which it is usually prescribed in cases of eczema or for antiseptic dressing. — *Pharm. Journ.*

Treatment of Tuberculosis by Iodoform Inhalation.

DR. GUOCCHI, on the theory that the bacillus of tuberculosis can be destroyed by certain substances, causes his phthisical patients to inhale vapor of iodoform from a bottle with an India-rubber tube furnished with a teat, which the patient holds in his mouth. The treatment is repeated several times a day. Cigarettes may be substituted, the iodoform being packed between two pads of wadding, as is done in camphor cigarettes. Dr. Guocchi uses the following liquor, with which he declares he has obtained remarkable results in a great number of cases:

	Grammes	
Iodoform, powdered	1.50	[24 grains]
Oil of Turpentine	.50	[10 min.]
Nut oil	150 to 200	[5 to 7 fl. oz.]
Oil of Bergamot	2.40	[40 min.]
Thymol	2.40	[40 min.]

—*Un. Méd.* and *Chem. and Drugg.*

[ORIGINAL COMMUNICATION.]

MEXICAN SANDAL WOOD BARK.

BY H. STIEREN, M.D.

IN Mexico and some of the Central American Republics, where it is indigenous, there is used, no doubt from reasons of economy, for fumigating purposes in churches, in the place of frankincense, the bark of a tree, particulars of which I have been unable to obtain, but which I am strongly inclined to consider as some species of Myroxylon or Myrospermum, leguminous plants.

This bark occurs in irregular, more or less smooth or unevenly corrugated pieces, of a light whitish cinnamon color with dark, hard epidermis, and of an agreeable, custard-like smell, and aromatic, slightly acrid, balsamic bitterish taste. A small quantity, coarsely powdered and sprinkled over burning coals, emitted a balsamic, mixed aromatic odor, devoid of the pungency of burned frankincense.

A thin cross-section manifested, at about 75 diam. linear, in the microscope, oil cells interstriated with apparently semi-viscid, resinous matter.

Nine hundred and sixty grains of the bruised bark, including about one-sixth its weight of the dark-colored epidermis, were exhausted with alcohol, and yielded, after removal of most of the alcohol by slow distillation on the water-bath and final spontaneous evaporation to syrup-consistence, 9.5 grammes, equal to 146.5 grains, or about 15.23 per-cent of a clear, rich brown, sweet-scented balsam-like substance, not dissimilar to Peruvian balsam in appearance. In the process of final condensation of the alcoholic extract, something like an ethereal oil partly separated to the surface in oily drops, but afterwards reunited with the denser parts.

A sample of this alcoholic extract yielded, with potassium hydrate, crystalline, quadrangular tablets of a yellowish color and of the flavor of coumarin, which, distilled with water and a little alcohol, gave a milky product of insipid, indifferent taste and smell, while the residue reassumed, after a few days' standing in the retort, the previous coumarin odor, indicating no essential change by distillation. This residue, treated with sulphuric acid to slight acidity, yielded a viscid, brown mass, of the exact smell of storax, while the liquid, which deposited a slight amount of cinnamic acid, was of cinnamon odor. The alcoholic extract is soluble in caustic alkali.

A small amount of the bruised bark was distilled with water, when a slightly milky distillate was obtained, of faint cinnamon smell, with a very slight oily surface, the phlegma being of a muddy brown color.

Another quantity of the bruised bark was macerated for a few days with water, with the addition of a small quantity of caustic potash to slightly alkaline reaction, the result, after expression and filtration, being a yellowish-brown liquid of same flavor as the bark. Sulphuric acid caused in the liquid a whitish turbidity with subsequent yellowish, crystalline precipitate; with hydrochloric acid also a whitish turbidity with subsequent brownish crystalline precipitate; both liquids, after addition of the acids, separating also on the walls of the precipitating vessels resinous matter as a flocculent, brownish mass. The yellowish, as well as brownish precipitates mentioned, proved to be cinnamic acid, more or less contaminated with precipitated resinous matter.

Continued experiments proved that the odorous principles rest in an oily substance, cinnamic acid and its combinations, and resinous matter. Benzoic acid, as a proximate principle, could not be identified, neither is there an alkaloid present in the bark. The

peculiar action of potassic hydrate on the alcoholic extract, producing the exact coumarin flavor, deserves continued attention, which I shall give it in due time.

Although, as a rule, not comparable to frankincense, which is a pure resin, and of a pronounced, strong and penetrating smell upon ignition, this bark, from its milder, but more aromatic odor, may be considered a good substitute for fumigation in churches, and the oleo balsamic constituent, being contained in the bark to the extent of 15%, will, no doubt, be found adaptable to many uses, and may eventually replace Peruvian balsam, than which it is much finer and more delicate.

DETROIT, MICH., 1884.

[ORIGINAL COMMUNICATION.]

EXAMINATION OF JEFFERSONIA DIPHYLLA [OR TWIN-LEAF] FOR BERBERINE.

BY ANSON W. FLEXER.

FIVE pounds of selected root of *Jeffersonia diphylla*, reduced to a moderately coarse powder, were thoroughly moistened with officinal alcohol, packed firmly in a carefully-prepared percolator, and after pouring on two gallons of officinal alcohol, allowed to stand and macerate for twenty-four hours. At the expiration of this time, percolation was commenced and continued until one and a half gallons of percolate had passed, when the operation was discontinued. Two gallons of officinal alcohol, acidulated with four fluid ounces of acetic acid, were then added, and maceration continued for twenty-four hours. At the expiration of this time, percolation was resumed, and all the menstruum allowed to pass. The last portions of the percolate proved to be tasteless and nearly colorless. After mixing the first percolate with the last, the mixture was brought to the measurement of four gallons by addition of officinal alcohol, in order to facilitate future calculations. The percolate was of a light brown color.

The dregs, after having been exposed in a drying-room to a temperature of 110° Fahr. for forty-eight hours, weighed four pounds and twelve ounces, showing a loss of four ounces.

To sixteen fluid ounces of the percolate (representing two and a half ounces of the drug) an excess of sulphuric acid was added and the mixture placed in a situation where the temperature remained below 50° Fahr. In like manner, sixteen fluid ounces, acidulated with hydrochloric acid, were set aside for twenty-four hours. In both solutions a light-brown precipitate formed, but neither of the precipitates nor the supernatant liquids showed any of the characteristics of berberine.

Thirty-two fluid ounces of the percolate, representing five ounces of the drug, were now placed in a glass retort, and the alcohol distilled until the liquid was of a syrupy consistence. It was placed in an evaporating dish, eight fluid ounces of water added, and the mixture evaporated on a steam-bath until all traces of alcohol had disappeared. The remainder was brought to the measurement of sixteen fluid ounces by the addition of water, and set aside for twenty-four hours, at the end of which time the fatty and resinous matter had separated. The contents of the dish were now filtered, and the precipitate in the dish washed successively with small portions of water, and the washings passed through the filter.

Eight fluid ounces of this filtrate were placed in a bottle, and after acidulation with sulphuric acid, the mixture was placed in a cool situation, in order to allow it to precipitate. In like manner, another portion was acidulated with hydrochloric acid and set aside. In both bottles slight precipitates formed, each having the color and appearance of the precipitate obtained from the aforesaid alcoholic solution, but entirely different from a a berberine salt.

The usual processes for separation of berberine having thus failed, a scheme was next followed which is employed by Prof. J. U. Lloyd in determining berberine under certain circumstances, and which is based upon the insolubility of picrate of berberine in water in the presence of dilute ammonia. This proved to be most delicate where traces of berberine were added to the original solution, and it demonstrated the absence of berberine in the root employed in the investigation, as follows:

Two hundred and twenty four fluid ounces of the percolate, representing thirty-five ounces of the drug, were subjected to distillation until one-hundred and ninety-two fluid ounces of alcohol had passed over. The liquid remaining in the retort was now placed in a capacious evaporating dish, and, after adding water, was evaporated on a water-bath until all traces of alcohol had disappeared. After standing twenty-four hours, to allow fatty and resinous matter to separate from the solution, it was filtered, and the filtrate brought to the measurement of twenty-four fluid ounces by the addition of water. The resinous matter was of a brownish-black appearance and the filtrate of a dark brown.

To six fluid-ounces of this filtrate, representing eight and three-fourths ounces of the drug, a solution of picrate of ammonium was added. A precipitate gradually formed, which, after standing twenty-four hours, was collected on a filter and the following tests applied for berberine.

A small portion was agitated with water and a few drops of ammonia added, when it readily dissolved. Another portion was shaken with officinal ammonia water, wherein it readily dissolved. Picrate of berberine being practically insoluble in cold water of ammonia (Lloyd), the test proves that the precipitate was not picrate of berberine.

A small portion of the original twenty-four fluid ounces of filtrate was now taken, and, after rendering it alkaline with water of ammonia, a solution of picrate of ammonium was added and no precipitate resulted. On the addition of a small portion of a very dilute solution of sulphate of berberine, a precipitate resulted at once, thus proving that had berberine been present in the original solution, it would have been precipitated according to the process described, previous to the addition of sulphate of berberine.

As the last tests proved to be most delicate where traces of berberine were added to the original solution, we can safely say that the specimen of *Jeffersonia diphylla* examined by me did not contain berberine.*

Pilocarpine in Diabetes.

A NEW use has been found for pilocarpine, by Dr. F. C. Eager, in the treatment of diabetes. In the *Lancet* (August 16th, p. 275) he describes a case which was cured by the use of pilocarpine and pepsin, with appropriate dietetic treatment.

A CHEAP VOLTAIC BATTERY.

THE *Electrician and Electrical Engineer* gives the following directions for making a battery which will serve for amateur telegraphy and a variety of purposes in which a galvanic current is useful, and where an expensive apparatus is not available. Take a number of glass bottles—say 2½ inches in diameter and 4½ inches high to the shoulder, and take off the bottom, either with the aid of a glazier's diamond, or by putting a small quantity of water into a saucer or similar vessel with a little turpentine or other inflammable liquid upon its surface. Stand the bottle in this vessel and light the turpentine, and the expansion of the glass will cause the bottle to break squarely off at the level of the water.

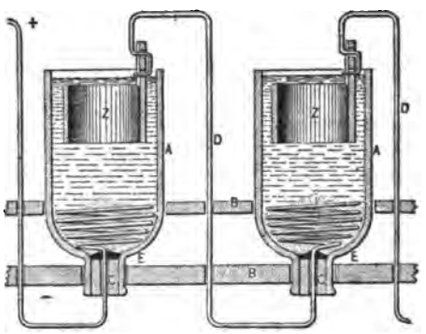


FIG 1.

Any required number of bottles, so prepared, may be arranged in inverted position, in a wooden rack (BB) formed of thin boards, the upper board having holes that will embrace the bottles above the shoulders, and the lower line of boards having holes that will allow the necks only of the bottles to pass. A cork C is to be inserted in the neck of each bottle, and through it is to pass a copper wire (D) terminating in a spiral of three or four turns, as shown at *d*. The whole should be made water-tight with sealing-wax or other cement at E. The wire D from each bottle is to be bent and poised through gimlet holes, as shown in Fig. 1. For the size of cells mentioned wire of American gauge 10, three feet in length, will answer for each cell.

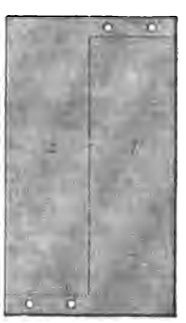


FIG. 2.

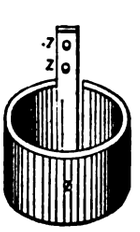


FIG. 3.

The zinc elements may be formed from rolled zinc about $\frac{1}{16}$ inch thick which should first be cut into rectangular pieces 4×6½ inches, and these again divided, as shown by the dotted line in Fig. 2. This will form two battery-plates without waste. These are then to be bent (with the aid of heat) into cylindrical form, as shown in Fig. 3, two holes having previously been drilled or punched, as shown at *zz*, Fig. 3. Through these holes the other end of the copper wire is to be threaded and secured by hammering, or, if convenient, by solder. The zinc should not be amalgamated.

The battery is set in action by filling the cells with soft water, preferably rain-water, after which a teaspoonful of pulverized sulphate of copper is to be dropped upon, and around the copper spiral at the bottom of each cell. The action may be hastened, if required, by the addition of a table-spoonful of sulphate of zinc to each cell.

* A thesis presented to the Cincinnati College of Pharmacy, session of 1883–1884.

These investigations were carried on in the laboratory of Prof. J. U. Lloyd, and with authentic specimens which were furnished by him. The writer takes this opportunity to extend his thanks for the favor.

* [The above is of interest because the drug (commonly known as *Ground-squirrel Pea*, *Rheumatism Root* or *Twin-Leaf*) is reported to contain a small amount of berberine. It is officinal among eclectic practitioners and may be found described in King's *American Dispensatory*, ed. of 1876, p. 159, and more briefly in the *U. S. Dispensatory*, ed. of 1883, p. 1,677, and the *National Dispensatory* of 1884, p. 818.—ED. AM. DRUG.]

Administration of Antipyrin.

B. REBER, of Geneva, recommends the administration of this new drug in combination with syrup of orange flowers, or syrup of raspberries, in the proportion of about thirty Gm. of either syrup for two to three Gm. of antipyrin (or about one fl. oz. for every thirty to forty-five grains). Other good vehicles are simple syrup flavored with essence of lemon, melissa, or peppermint. [Probably still better will be simple elixir or the compound elixir of taraxacum of the N. Y. and Brooklyn Formulary. — ED. A. D.] The best vehicle, according to the author, is wine, in which the drug should be dissolved immediately before it is administered, since the antipyrin causes the coloring matter of the wine to precipitate on standing.

The same author states that French physicians highly praise the effects of the drug when administered hypodermically.

The experiments made with the drug in Paris have confirmed all the good reports so far published, but have also shown that patients who have become enfeebled by protracted, chronic diseases (tuberculosis, purulent discharges, etc.) are very easily affected by the drug, even when it is administered in small quantities.—*Pharm. Centralb.*

Improved Blaud's Pills.

THE suggestion of Kirchmann (see AM. DRUG., November, p. 207), of using a little borax for improving the pill-mass of copaiba, has induced C. Deupser to try the same salt in Blaud's pills, and the result was highly satisfactory. The author gives the following directions:

	Gm.	Grains.
Sulphate of iron (ferrous)	15.0	240
Carbonate of potassium	15.0	240
Mucilage	8.0	128
Sodium borate	0.1	1½ (to 2)
Althæa root, powd.	1.5	24
Tragacanth, powd.	0.5	8
Glycerin	a few drops.	

Reduce the sulphate of iron and the carbonate of potassium, each separately, to a fine powder, mix them, add the mucilage, and triturate that a sticky green mass is formed. Next add the borax and mix thoroughly. During the trituration the mass will be distinctly felt to become harder, and and after standing 15 minutes, it will have become almost pulverulent. The althæa and tragacanth are now added, together with a few drops of glycerin, so that a pill-mass of proper consistence is formed which is to be divided into 100 pills. The latter will be found to be comparatively small, of a fine green color, and retaining their softness for some time.—*Rundschau* (Leitmeritz).

[As an addional protection against oxidation, they should be coated with tolu, according to the directions of the U. S. Ph. for Pilulæ Ferri Iodidi. Another formula for Blaud's Pills will be found in the August number of this Journal, p. 149.—ED. A. D.]

Medicated Kaolin and Other Pastes.

PROF. UNNA, to avoid the greasiness and reduce the cost of ointments, has suggested the use of kaolin, or porcelain clay, as a basis. The paste should be quickly and easily spread in a thin layer on the skin, and should form in a short time a firmly adhering coating.

Pure kaolin, with vaseline or glycerin in equal parts; with oils, such as olive, almond, or linseed, in the proportion of two to one, will produce a good paste. With more linseed oil, a liniment is produced. This, when spread on extensive surfaces, leaves a quickly-drying residuum. When other ingredients, such as lead acetate of zinc oxide, are used, the kaolin and oil or glycerin are to be mixed first, and the lead or zinc added, as the kaolin is otherwise apt to form an insoluable cement with the metallic salt. Yellow or red kaolin may be used in place of white, and these pastes may not only be used in the treatment of certain diseases of the skin, but also as vehicles for escharotic agents.

The following formula is suggested:

Pure Kaolin,
Linseed Oil (or glycerin), of each.....30 parts.
Oxide of Zinc,
Solut. of Subacetate of Lead, of each....20 "

—*Edinb. Med. Journ.* from *Monat. f. Prak. Derm.*

Prof. Unna, in his experiments with kaolin pastes, found that other forms of paste might be used to advantage, as for example:

Lead pastes.—Boil a quantity of litharge with double the quantity of vinegar, until the latter has evaporated and the litharge has become a moderately damp mass. Should the paste in time become dry, it can be restored by heating it with more vinegar, or:

Lithargyri subt. pulv. parts 50
Aceti..... " 80

Boil to the consistency of a paste and add

Ol. Lini (*vel* glycerini, *vel* Ol. Olivæ).....parts 10

Starch Pastes.—Useful in eczema. In this case, the property of drying must be imparted to the paste by the addition of oxide of zinc, sulphur, etc.

Zinci Oxidi.....parts 50
Acid. Salicylici..... " 2
Amyli Oryzæ..... " 15
Glycerini..... " 15
Aq. destillat..... " 75

Mix simultaneously, and heat until reduced to 140 parts.

A similar paste for acne consists of:

Sulphuris præcip.....parts 40
Calcii Carbonat..... " 2
Zinci Oxidi..... " 20
Amyli Oryzæ..... " 15
Glycerini..... " 20
Aq. destillat..... " 75

M. Reduce by boiling to 120 parts.

Dextrin Pastes.—(For eczema.)

Zinci Oxidi.....parts 40
Dextrini (pulverized),
Aq. destillat.....aa. " 20
Glycerini..... " 40
Sulphuris sublim..... " 2

M. Boil to a paste.

For freckles:

Zinci Oxidi.....parts 10.
Bismuthi Oxychloridi, " 2.
Hydrarg. Perchloridi, " .02–0.5
Dextrini,
Aq. destill.....aa. " 10.
Glycerini..... " 15.

M. Boil to a paste. If it becomes hard, a few drops of water will enable it to be spread.

Gum pastes (for chronic infantile eczema).

Zinci Oxidi.....parts 40
Hydr. Oxidi Rubri.... " 2
Mucilag. Acaciæ,
Glycerini.....aa. " 20

M. secundum artem.

Cretæ Præparat.,
Sulphuris Sublim..aa. parts 2
Picis Liquidæ..... " 8
Amyli..... " 20
Mucilag. Acaciæ,
Glycerini.....aa. " 15

M.

For scabies:

Zinci Oxidi.....parts 40
Bals. Peruv..... " 20
Mucilag. Acaciæ,
Glycerini.....aa. " 30

M.

For sore nipples:

Sacchari Albi,
Zinci Oxidi,
Mucilag. Acaciæ,
Glycerini.....aa. parts 5

M.

The gum pastes will serve also as vehicles for chrysarobin and pyrogallic acid and oily substances, but cannot be employed for acids, since these destroy their adhesiveness. Kaolin paste can also be used for chrysarobin and pyrogallic acids.

Attempts to form pastes which can be kept in bulk ready prepared have thus far been unsuccessful. Even oil, or glycerin, fail to prevent their hardening in time, and as the best pastes are those which dry the most rapidly when applied to the skin, these are the ones which are soonest spoiled by keeping. Corrosive sublimate, calomel, red and white precipitate, naphthol, carbolic acid, chloral hydrate, and camphor may be combined with any of the above formulæ. Salicylic acid mixes well with all the pastes, excepting in large proportions with gum paste. Iodine and iodoform are compatible with the lead, kaolin, and gum pastes, but not with the others. Animal, vegetable, and mineral fats and soaps can be mixed in small quantities with all the pastes.—*Edinb. Med. Jour.*

Wax-Pencils for Colored Writing upon Tin, Wood, etc.

1. *Red.*

Carnauba wax.....20 parts.
Ceresin, natural.....40 "
Japan Wax.....40 "
Cinnabar.....15 to 25 "

Note: The first three ingredients must previously be boiled with water until they cease to yield anything to the latter.

2. *Carmine.*

Carnauba wax, white, best 20 parts.
Japan wax, white, best...15 "
White wax, best.....15 "
Carmine.....25 "
Cinnabar (imitation).....25 "

3. *Red.*

Carnauba wax, white.....30 parts.
Japan wax, white.....25 "
White wax.....25 "
Cinnabar, Chinese (gen.)..20 "

4. *Blue.*

Carnauba wax.....25 parts.
Ceresin, natural.....25 "
Prussian Blue.....50 "

Unna's Formula for Cold Cream.

DR. UNNA, of Hamburg, the well-known dermatologist, has made a comparative study of the various formulæ proposed in different old and new pharmacopœias and formularies for cold cream and has come to the conclusion that, so far as appearance, consistence, cooling effect, etc., etc., were concerned, the following formula is the most suitable for dermatological purposes:

Rose-water.....10 parts
Expressed Oil of Almonds.....10 "
White Wax..... 1 part
Spermaceti..... 1 "

Misce sec. art.—After *Pharm. Centralbl.*

Jamaica Ginger.

THE cultivation of ginger upon Jamaica has been greatly diminished. According to the report of Mr. Morris, only 7,036 cwt. (value of £16,000) were exported during the last five years, against 11,219 cwt. (value, £22,000), in the previous five years. The cause is to be ascribed partly to the exhaustion of the soil by rapacious planters, and partly to improper methods of planting.—*Pharm. Zeit.*

Persian Opium.

U. S. Consul-General Benjamin, at Teheran, Persia, makes the following report to the Department of State:

I have the honor to report that several letters have been addressed to this consulate-general for the purpose of obtaining information regarding the character and price of Persian opium. I beg, therefore, to submit a few observations on the subject, which may be of value to our importers.

Some years ago, the production of opium in Persia was larger than at present. The unusual amount of morphia which Persian opium contains made it justly preferable to that produced elsewhere, and large quantities found their way to foreign markets, and especially to China.

Two causes have latterly tended to check the culture and export of Persian opium, although the trade in the article is still important. One of these causes alone might not have led to such a result, but the two coming about the same time have somewhat discouraged the production of Persian opium. These causes were the increasing adulteration of the article, and the fact that the attention given to its culture materially reduced the more important culture of wheat, which led the government to regard the opium product with disfavor.

Persian opium is chiefly grown in the provinces of Kermanshâh and Ispahân. The latter city is the centre of opium trade of Persia. The opium of Ispahan is the best; the highest grade has been found to contain fifteen to sixteen per cent of morphia. It is fair to state, however, that of late the opiums of Kûm, Teherân, and Nezd have been growing in favor, some specialists considering the quality raised at Kûm as surpassing every other grade of opium. As the highest quality of Smyrna opium does not contain a mean of over 13.57 per cent of morphia, some analyses placing it even lower, while the Persian drug yields at its best thirteen to sixteen per cent of morphia, hard, it certainly rivals that of Symrna, and is beyond question far superior to that of Egypt and India.

The chief objection to the opium of Persia lies in the adulteration to which it is subjected, the chief ingredient in this deterioration being grape must, and sometimes small stones concealed in the parcels. This difficulty could be remedied by any enterprising house which, through honest, capable agents, could purchase the entire product of Persia, or of any one of the opium producing districts, and give direct attention to the preparation and packing of the drug. A pure article could also be obtained by a firm ready to form a contract for a certain quantity of a given grade of the drug for a term of years, the continuance of the contract depending on the non-varying proportion of morphia in the exported article.

The average price of the opium of Persia, in its crude state, is now $4.77 per kilogramme. To 72 kilogrammes of opium are added 6 kilogrammes of linseed oil. The mixture is then subjected to a manipulation which reduces the 77 to 66 kilogrammes. These 66 kilogrammes are divided into 100 balls, forming a Persian package. A specified number of the balls of opium make a case. The cost of packing, freight, and other incidental expenses bring the average price of a case of Persian opium, such as is prepared for export, up to $366.66. The excise duties vary at different centres of the trade, but five per cent ad valorem is the uniform rate according to the treaty of Turkomantchai on all goods exported to Europe or America, and I may add, on all goods imported from those countries into Persia.

It is stated that 2,000 cases of opium, valued at $732,000, are now exported from Bushire to England, besides what finds its way to China and other quarters, from the other districts of Persia. There is no doubt that if sufficient encouragement were offered, especially by the establishment of agencies at Ispahân or Teheran, or by making permanent contracts, the product could easily be increased and the purity of the exported articles improved. Indeed the opium merchants of Ispahân have already made overtures for the American trade, and are prepared to make contracts for a term of years.

It is proper to state inquiries made of practising physicians at Teherân, including an American physician, elicit the highest opinions in favor of the opium of Persia as regards the character, and quantity of morphia it produces when unadulterated.

Note on the Filtration of Lard.*

The author stated last year, as the result of certain experiments, that washing and straining, or washing and filtering, were without advantage in the preparation of lard for use as an ointment basis, and further, that filtration, *per se*, possessed no advantage in practice. In reply to this, Mr. Conroy said "he found that, by filtration, he got a most excellent product, which would keep good and sweet. He did not consider washing to be of much use, but careful filtration was necessary to separate decomposable matter." Prof. Redwood subsequently expressed the opinion that "complete separation of all suspended matter is obviously important, and, therefore, filtration seemed desirable where practicable." At the Exeter Meeting in 1869, Mr. Edward Smith said: "I cannot too strongly insist that, if lard be required of first quality, it is absolutely essential that it should be filtered through paper . . . the germ of success lies in filtration . . . to strain is to invite inferiority, to filter is to secure superiority, if not perfection."

Table showing generally the effect as regards rancidity in the two most rapidly decomposable ointments when prepared respectively with strained and filtered lards.

	Lard strained through tow, flannel, or linen.	Lard filtered through paper.	Lard washed and strained through flannel.
Ung. Summer Temp. 65°-80° F.	Changing	Changing.....	Changing.
Ung. plumb. carb., 4th week.	Rancid	Rancid.....	Rancid.
Ung. plumb. carb., 5th week.	Good	6 Changing....	Changing.
Ung. hyd. n. ox., 4th week.	Good	5 Changing....	Slightly rancid.
Ung. hyd. n. ox., 5th week.	Slightly rancid.	Rancid	Rancid.
Ung. hyd. n. ox., 6th week.			

Mr. Willmott has, therefore, made some more experiments. He took perfectly fresh leaf lard, melted it, and strained it through fine tow, flannel, and fine linen, and filtered it through paper. A portion of each of these strained specimens was allowed to pass into a test-tube, and all being subsequently melted at the same temperature, the difference in clearness and uniformity of condition, when examined by transmitted light, was practically nil. The specimens were then used in the readily-changing ointments.

A third ointment (ung. pot. iod., and zinc. carb.) soon became discolored, the difference being distinctly to the disadvantage of the specimens prepared, respectively, with the washed and filtered lards.

This general statement, the author thinks, shows that, so far from the filtration of lard possessing any advantages in practice, the operation is one which will be found to be "more honored in the breach than the performance." He regards his former experiments as clearly corroborated, and considers that the most desirable method for adoption in preparing lard for use in pharmacy is one corresponding to that suggested by Prof. Redwood, or one assimilating, with some slight modifications, to the process of the British Pharmacopœia of 1864. These processes exclude both washing and filtration.

* Abstract of paper read before the Brit Pharm. Conf. by W. Willmott.—After *Chem. and Drug.*

The Recognition of Adulterated Essential Oils.

H. W. Langbeck proposes a novel method for ascertaining, within certain limits, the purity or identity of essential oils. This method is based upon the varying degree of solubility of *salicylic acid* in the oils. It was found that this was much more soluble in such oils as contain oxygen than in those free from it. For instance, the oils from Labiatæ dissolve a great deal of the acid, those from Umbelliferæ mostly a smaller quantity, and those from Coniferæ, Cassieæ, or Dipterocarpeæ only very small quantities. The following rates of solubility are given by the author, for one part of salicylic acid:

Oil of Anise, freshly rectif.	74.7
do. with 5% Oil Turpentine.	94
do. with 10% Oil Turpentine.	116
do. pure, 1½ years old.	70
do. do. do. with 5% Oil Turpentine with 10% Oil Turpentine	81 / 100.6
Oil Bergamot, fresh	30
do. with 5% Oil Turpentine.	36
do. with 10% Oil Turpentine.	42
do., 1 year old.	17
do. do. with 5% Oil Turpentine	22.5
do. do. with 10% O. T.	36
Oil Cajuput, 1 year old.	10
Oil Caraway, 1 year old.	8.5
Oil Cloves, fresh.	56
do. with 5% Oil Turpentine	68
Oil Cassia, 1 year old.	7.7
Oil Lemon, ½ year old.	80
do. with 5% Oil Turpentine.	104
do. do. 10% Oil Turpentine	125
Oil Eucalyptus, 1 year old.	13
Oil Fennel, 1 year old	31
Oil Juniperwood, 1 year old.	130
Oil Lavender, fresh	12
Oil Melissa, 1 year old.	13
Oil Curled Mint, 2 years old.	10
Oil Peppermint, Hotchkiss, 1 year old	7
Oil Peppermint, with 5% Oil Turpentine	14.6
Oil Peppermint, with 10% Oil Turpentine	26
Oil Rosemary, fresh.	12.5
do. with 5% Oil Turpentine.	17.65
do. with 10% Oil Turpentine	24
Oil Thyme, fresh.	55
Oil Mustard, fresh.	58
Oil Valerian, 3 years old.	15
Oil Turpentine, fresh	625
do. ½ year old.	540

Though in many cases no practical or useful conclusion can be drawn from these figures, yet in some cases it will be possible to distinguish a genuine oil from one that is adulturated.—After *Pharm. Post.*

THE

American Druggist

(NEW REMEDIES)

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XIII., No. 12. WHOLE No. 126

FRED'K A. CASTLE, M.D., - EDITOR.
CHAS. RICE, PH.D., ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N.Y.

DECEMBER, 1884.

SUBSCRIPTION PRICE per year, ... $1.00
SINGLE COPIES, ... 10

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed to THE EDITOR OF AMERICAN DRUGGIST, in care of William Wood & Co., 56 and 58 Lafayette Place, New York City.

The AMERICAN DRUGGIST is issued on the 25th of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

ELECTROTYPES of the illustrations contained in AMERICAN DRUGGIST will be furnished for 50c. per square inch.

EDITORIAL.

IN looking back over the issues of our Journal during the past year, we may be permitted to feel a little pride over the large measure of success which has attended our efforts to cater to the wants of our critical patrons. Our aim has been to lay before our readers the very best, most reliable, and newest information on subjects relating to the scientific branches, as well as to the commercial and trade interests of the profession.

The new departure inaugurated with the commencement of this volume, of adding a column of reading matter to the outside or advertisement pages, has enabled us to separate papers and articles of permanent value from those of a more ephemeral character, and the wisdom of this step has by this time been fully appreciated by our readers and patrons.

In providing the best reading matter and the most reliable information for our public, neither time, labor, nor expense is spared either by the publishers or the editors.

Among the most trying and difficult tasks devolving upon the editors are the replies to inquiries of our correspondents. These often involve more or less protracted experiments, search through literature, or correspondence with various persons; but as we enjoy special facilities in all these directions, we have been able to fully satisfy all our inquirers, and to meet their approval.

While our Journal devotes a considerable space to scientific pharmacy, and no important new fact or discovery is overlooked, it *particularly aims to be practical*, providing the busy pharmacist with reliable working formulæ, practical hints for dispensing, suggestions for improved apparatus or appliances suitable for his business; and that this feature is fully appreciated, is amply testified to by our correspondents, and by our very large subscription list.

For the coming year, we do not need to make any special promises, except perhaps to say that our aim will be to constantly augment the usefulness of the journal, and to still better merit the approval of our readers.

On Cocaine and its Hydrochlorate.

COCAINE, the alkaloid of *Erythroxylon Coca* Lam., was discovered by Niemann in 1860, and afterwards studied by W. Lossen (1862) who assigned to it the formula $C_{17}H_{21}NO_4$.

Niemann prepared cocaine by exhausting coca leaves with eighty-five per cent alcohol, containing $\frac{1}{15}$ of sulphuric acid, supersaturating the alcoholic solution with lime, then neutralizing, carefully, with diluted sulphuric acid, separating the precipitated sulphate of calcium, and distilling off the alcohol. The residuary liquid is supersaturated with soda and then shaken repeatedly with ether which dissolves out the cocaine. On evaporating the ethereal solution, cocaine remains behind in an amorphous condition, but soon becomes crystalline. It is somewhat purified by washing with a little strong alcohol [?], and then recrystallized from highly dilute alcohol.

Lossen extracts coca leaves with rain-water, precipitates with acetate of lead, removes the excess of the latter remaining in solution by means of sodium sulphate, filters and adds soda to the filtrate in slight excess. On shaking this mixture with ether, only *cocaine* passes into solution, while *hygrin* remains in the alkaline liquid. The crude cocaine obtained after the evaporation of the ether is dissolved in very dilute hydrochloric acid, and this solution dialyzed, the cocaine passing through parchment paper, while most of the accompanying coloring matter remains behind. From the dialyzed acid solution the alkaloid is then precipitated with soda, and obtained pure by several times recrystallizing it from alcohol.

Lossen obtained, in the most favorable case, 4 parts per 1,000, and from poor material only 1.6 parts per 1,000.

Cocaine crystallizes in four or six-sided monoclinic prisms. It is soluble at 12° C. in 704 parts of water; easily soluble in alcohol, and still more so in ether. It melts near 92°.

From a dilute aqueous solution of hydrochlorate of cocaine, the alkaloid is precipitated by caustic alkalies and their carbonates, also by ammonia and ammonium carbonate, though the latter cause a considerable portion to be retained in solution. Bicarbonate of sodium and potassium yield a precipitate only in its concentrated solution. Sulphocyanide of potassium renders its solution but slightly turbid. So also tannic acid, provided free hydrochloric acid is present. Stannous chloride causes a white precipitate soluble in much nitric acid; mercuric chloride, a copious precipitate rapidly becoming flocculent, soluble in alcoho. and hydrochloric acid; picric acid, a pulverulent, yellow precipitate soon becoming resinous; phosphomolybdic acid, a yellowish-white flocculent precipitate; iodine water, or iodized iodide of potassium, a kermes-brown precipitate.

Dilute acids do not alter cocaine, but concentrated acids (sulphuric, etc.) change it into *ecgonin*, benzoic acid, and methyl alcohol, or rather the ether of the latter. Ecgonin is a product of the decomposition of cocaine, and not a natural constituent of coca leaves.

Cocaine combines easily with dilute acids, forming easily crystallizable salts, which are soluble in alcohol, but *insoluble in ether*, have a bitter taste, and leave a transient sensation of insensibility upon the tongue.

Hydrochlorate of cocaine, $C_{17}H_{21}NO_4.HCl$, separates from its aqueous solution in short transparent prismatic crystals which are permanent in the air.

Acetic acid dissolves cocaine readily, but on evaporation the base separates again in crystals. Niemann took these for the acetate.

Nitrate of cocaine crystallizes with great difficulty.

Neutral sulphate of cocaine is a transparent gummy mass, becoming only slowly crystalline.

Cocaine is accompanied, in the coca leaves, by a volatile and liquid alkaloid, which remains behind when the aqueous extract, supersaturated with soda, is shaken with ether. It may be separated by distilling the aqueous liquid, or by distilling the leaves with water. It has an odor resembling that of trimethylamine, has a bitter taste, and an alkaline reaction, but is not poisonous.

We are informed by Mr. E. Merck that he manufactures both the pure alkaloid cocaine, as also the following salts: hydrochlorate, salicylate, hydrobromate, tartrate, and citrate.

From a communication received from Mr. Merck, we select the following interesting data:

Schroff who made the first experiments with cocaine, in 1862, observed that it caused fluctuation in the respiration and pulse, and produced mydriasis. Fronmüller (1863) found that it had but little effect in man, in doses of 0.03 to 0.33 Gm. ($\frac{1}{2}$ to $\frac{1}{4}$ grain), and in the case of an attempted suicide, 1.5 gm. (24 grains) did not even produce serious results. The fatal dose, therefore, seems to be much higher, unless the cocaine used in those days was very impure.

According to Merck, coca contains between $\frac{1}{4}$ and $\frac{1}{2}$ per cent of cocaine. The average effective dose of his hydrochlorate, in man, is stated to be 0.05 gm. ($\frac{3}{4}$ grain).

Last year, cocaine was recommended as a remedy in cases of great exhaustion from various causes. Its use in such cases suggested itself naturally

from the well-known fact that coca has long been used as a preventive of the waste of tissues, fulfilling the same function as tea, coffee, and other substances of this nature. It has also been found of great value in the treatment of morphinism, supplying the craving for stimulants resulting from the gradual or sudden withdrawal of morphine or opium. A similar use has suggested itself in the treatment of alcoholism. Dr. Freud has reported very favorable results in morphinism: when morphine is to be slowly withdrawn, the dose is gradually lowered and that of cocaine proportionately increased. When the withdrawal is to be done suddenly, doses of 0.1 gm. (1½ grains) of cocaine are injected hypodermically, as often as hunger after morphine sets in. Dr. Freud reports complete recovery in one case after ten days' treatment, and believes that there is a positive antagonism between morphine and cocaine.

It has been often noticed by different experimenters since 1863, that cocaine produces temporary insensibility or numbness when applied to certain mucous membranes, but no practical use suggested itself until quite recently. [In the United States it has been used to a considerable extent to lessen the irritability of the soft palate and pharynx in laryngoscopic examinations.]

Dr. Koller, of Vienna, the discoverer of the anæsthetic effect of the remedy, had experimented upon the eyes of animals and a few times also upon his own, and found that immediately after the instillation of a two-per-cent solution of hydrochlorate of cocaine into the eye, there was felt a short feeling of burning lasting for about one-half minute which was soon followed by an indistinct feeling of dryness. The aperture of the eyelids appears wider, and reflex actions (such as is usual when the cornea is touched: twitching of the head, of the lids, turning aside of the bulb, etc.), disappear. When this condition prevails, pressure may be made upon the cornea or a portion of the conjunctiva be caught with pincers, without any disagreeable sensation being felt. The anæsthesia of the eye lasts for about ten minutes, and a low degree of sensibility persists for several hours. Twenty to thirty minutes after the application, the pupil becomes dilated, returning in about twelve hours to its normal condition. The only abnormal symptom observed during this condition is a slight paralysis of accommodation which can, however, be overcome by a little effort.

Since Dr. Koller publicly exhibited his experiments and prophesied for cocaine a speedy general use in ophthalmological practice (for operations, etc.), the new drug has been experimented with in all countries, the United States included, and those who have used it and seen its operation are quite enthusiastic over it. Moreover, it has already been ascertained that it acts as an anæsthetic not only on the conjunctiva of the eye, but on all mucous menbranes. The supply in this city has mainly been obtained from Mr. Foucar, a pharmacist on the corner of Third avenue and Thirty-third street, and it is reported that attempts by several other manufacturing chemists to prepare the muriate have been moderately successful. At present the salt is eagerly bought at the rate of fifty cents per grain. The demand upon the manufacturers of the alkaloid must have come to them so suddenly and so overwhelmingly that it will be a difficult matter for them to supply it for some time to come. Up to September of this year, both cocaine and its hydrochlorate were quoted at about seven marks per gramme in the price list of several German manufacturers. At present and probaby for a long time to come, it will fetch a greatly increased price.

Experiments are at present being conducted with the decomposition-product of cocaine, namely, ecgonine, and Mr. Merck promises to communicate the results at some future time.

SINCE writing the preceding article, further information has reached us regarding the usefulness of this new drug. Indeed, it would seem as if its applicability were to turn out as manifold as that of any old-established drug, if not more so.

Prof. W. M. Polk, M.D., has used a four-per-cent solution of cocaine as an anæsthetic in an operation for abscess of the liver, the solution being applied to the open wound, and under its anæsthetic effect the operation was completed within twenty-five minutes, without any discomfort to the patient. It is, however, not likely that cocaine will displace ether and other well-known anæsthetics, since it is probably incapable of exerting its influence over a large wound, and moreover, it is not likely that it will be available in sufficient quantity for a long time to come.

Dr. F. H. Bosworth reports, in the *Medical Record* (Nov. 15th), that on applying a solution of cocaine (2%) to the nasal passages, the venous sinuses below the mucous membrane become, within twenty or thirty seconds, so rigidly contracted as to expel all the blood contained in them, and to cause the membrane to cling closely to the bony structure which then becomes sharply outlined. He has used the drug in hypertrophy of the nasal mucous membrane (*nasal catarrh*), acute *coryza* and in operations for nasal *polypus*. In each case the venous congestion or turgescence was so thoroughly kept down that all discomfort was removed, and in the case of polypi not only the recognition and removal of the growth became quite easy, but also turned out a bloodless operation.

Dr. Bosworth also suggests the use of cocaine in hay-fever.

[A four-per-cent solution is now generally preferred when prompt action is required.—ED. A. D.]

We may add that the drug appears to us to be of value particularly also to *dentists*. Its application to the gums and fauces will probably be found to be followed by sufficient local anæsthesia to permit the extraction of carious teeth, and it will probably not be necessary, except in special cases, to administer gas.

In *toothache*, the drug promises also to be very useful, and our readers troubled with this unfashionable complaint may quickly convince themselves of the value of our suggestion.

The action of coca and of cocaine to repress the sensation of hunger, is no doubt partly (or mainly) due to the physiological effect which the drug exerts upon the mucous membrane of the stomach and intestines, an effect which is probably analogous to that which Dr. Bosworth describes in the case of the nasal passages. Through the repression of circulation in the mucous membrane of the stomach (and accompanying repression of the gastric juice), the process of assimilation is temporarily suspended, and cravings of hunger suppressed until the effects of the drug wear off. That coca actually can allay hunger for a considerable time is well-known, and there is even a case on record when a number of miners had been buried alive in a South-American mine and kept themselves alive, without food or drink, for twelve days with their small supply of coca.

If ever a remedy, on purely theoretical grounds, held out any hopes of being serviceable in *sea-sickness*, it seems to us that cocaine is one of these. At all events, it will be worth while to try its effects.

The new French Pharmacopœia.

SHORTLY after the Codex had been published some months ago, very serious criticisms were made on all sides, both in France and in other countries, regarding the numerous errors with which the work abounded. The complaints were urged with so much force that the Government instructed the Commission to immediately prepare a corrected edition, which has been done in two ways; namely, first, in the issue of an entirely new edition in which one hundred and thirty-two alterations were incorporated, and secondly, in the publication of a separate pamphlet of eight pages in which, besides the above 132 changes, 83 further alterations are directed to be made, making thus 215 changes or corrections altogether. The official authority of the *pamphlet* appears, however, to be somewhat uncertain, as it contains neither signature nor date, and only bears a note saying "that the quoted corrections had been decided on by the *Commission du Codex* and the *Société de Pharmacie de Paris*, and that most of them had been incorporated into the second issue of the [new] Codex; but that such errors as are found in *both* issues of the work are distinguished in the pamphlet by *italics*."

Of the changes officially determined on, 12 refer to the preface, 10 to the preliminary notices, 22 to crude animal or vegetable drugs, 30 to chemicals, 127 to galenical, and 7 to veterinary preparations. The index, which was by no means free from mistakes, remained unchanged.

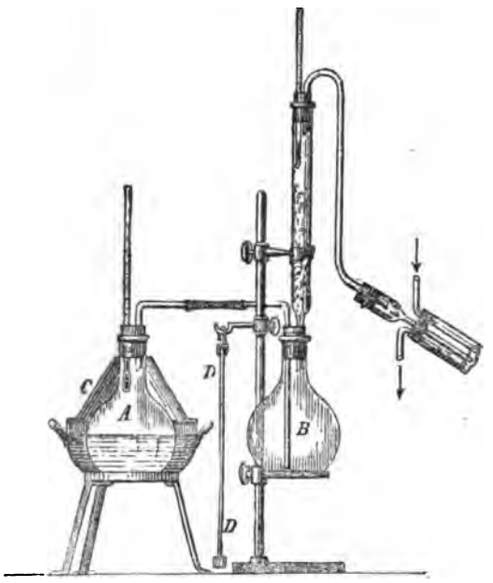
But the "corrections" of the errata have in some cases introduced new ones, some of which it is actually a surprise to see in a work supposed to come from first-rate authorities. To quote only one instance, the *English* ounce, according to the list of corrections, is stated to have 8 drachms, a drachm 3 scruples, and 1 scruple 20 grains, which of course is the apothecaries' or troy ounce, while the English ounce contains 437.5 grains.

The list of errata evidently was compiled with as much carelessness as the original work itself; for instance, in fifteen instances, the corrections to be made do not belong to the pages indicated, but to a neighboring page, which is apt to cause confusion.

Still more is to be regretted the *incompleteness* of the list of errors, because it is to be feared that those who have the work with the "errata," will now suppose the work as perfect as possible, and not requiring further scrutiny. But aside from several dozen misprints, the work, even after all apparent corrections, still contains dozens of errors, miscalculated figures, or misleading statements, which we refrain from quoting, as the original is but sparingly in use here. A large number of these errors had been criticised and their correction indicated in the German pharmaceutical press, shortly after the original had appeared. But no French pharmacist or member of the French Commission of Revision appears ever to have heard of these articles or taken any notice of them. If they had, they would have been able to avoid or correct many other mistakes. The discovery of most of them is due to the searching criticism of Dr. Bruno Hirsch, from whose papers on the subject, in the *Pharm. Centralh.* (1884, No. 36, 37) we have extracted the above statements.

On the Keeping Properties of Morphine Solutions.

A CORRESPONDENT of the *Pharm. Centralhalle* (No. 24) states has he has found solution of hydrochlorate of morphine to keep quite well, if made with doubly distilled water and with a morphine salt free from dust. The author has been in the habit of dissolving 10 Gm. of the hydrochlorate in 200 C.c. of twice-distilled water at a temperature not exceeding 35° C. (95° F.). Filtration is only performed when solid particles are seen to float about in the liquid. [The author evidently ascribes any developing fungi, etc., to the accession of dust to the salt, which indeed is likely to be the chief cause. Yet it seems to be almost impossible to prevent the access of germs to the contents of a bottle, or to the mass of crystals when put up in bottles by the manufacturer.]



APARATUS FOR FRACTIONAL DISTILLATION.

THE following arrangement is recommended by L. Weigert:

A is a flask of the capacity of three or four pints, in which is contained the liquid which is to be subjected to fractional distillation. This is heated by a water-bath, or a solution of chloride of sodium, or a sand-bath, according to the liquid to be distilled. *B* is a flask of equal size, upon which is attached (according to Hempel's suggestion a glass tube filled to three-quarters with pieces or beads of glass, and sixty-five cm. (twenty-five inches) in length. The two flasks are connected by a bent tube which should not be too narrow and which is best put together from two pieces, joined by rubber-tubing. In order to distribute the heat uniformly, a hood of tinned iron, *C*, is inverted over the flask *A*. This hood is provided with hinges and may be opened. It has the additional advantage of preventing the contents of the flask from being scattered about if it should crack or break. Between flasks *A* and *B*, a piece of window-glass *D* (in a frame) is suspended, partly to prevent too much radiation of heat towards flask *B*, and partly also to act as a sort of screen in case the flask *A* should break. For the same reason, the two flasks should be at least thirty to thirty-five centimeters (twelve to fourteen inches) apart.

The other portions of the apparatus and its use are self-evident. Its great practical utility may be judged from the fact that a single distillation is able almost completely to separate alcohol and ether, which is not possible by merely using a Hempel's tube (filled with glass beads). Another advantage is, that when heating alcohol of not over fifty per cent (which may be done on a sand-bath), a Liebigs condenser rendered unnecessary; in fact, the apparatus is then self-condensing. —*Zeitsch. Anal. Chem.*, 23, 365.

Relationship between the Terpenes of Oil of Orange and Oil of Levant Wormseed.

WALLACH and BRASS have quite recently published an elaborate paper on the constituents of oil of Levant wormseed, in which they show that the contradictory results obtained by previous observers were caused by certain unsuspected facts or defective manipulation. They have cleared up the subject quite thoroughly, but have only room for a short abstract of a few of the more interesting portions.

The crude oil contains an oxygenated body, $C_{15}H_{18}O$, which is best isolated by conducting dry hydrochloric acid gas into the well-cooled oil, removing the crystalline magma and expressing the liquid portion, then treating the crystals with water, which causes them to disappear, while an oil makes its appearance, which is to be treated in the same manner until the crystals are pure and white. The oil obtained from these is then dried and rectified. This substance is called by the authors *Cyneol;* it boils at 176°–177° C.

From the preceding it will be seen that if hydrochlorate of cyneol is treated with water, it splits into its components. If, however, the compound be heated without water, in a closed tube, it splits into two layers, one consisting of a body devoid of oxygen, while the other contains more than the original cyneol. The former, after purification, turned out to be a hydrocarbon, $C_{10}H_{16}$, which the authors name *cynen*, restricting the use of this name (which has been already employed by others) to the narrower limits defined by them.

This pure *cynen* has the remarkable property of possessing a most agreeable odor of lemons, which is noticeable even in a weak alcoholic solution. If the hydrocarbon is contaminated by foreign bodies, the odor is more or less masked.

This remarkable fact led Wallach to suspect that cynen might be identical with some of the terpenes occurring in essential oils of the orange family. One of the characteristic properties of cynen is, that it may be converted with the greatest ease into a crystalline tetrabromide. Ordinary terpenes, obtained from pines, do not possess this property at all; nor could any such compound be obtained from oil of eucalyptus or oil of bergamot. Oil of lemon, when treated with bromine, yielded but a very slight quantity of crystals. But oil of orange, no matter from what source, yielded a most copious crop of crystals (tetrabromide) of great beauty, which have great similarity with those obtained from cynen. They differ, however, in melting points. Tetrabromide of cynen melts at 125°–126° C., but tetrabromide of hesperidene (the name of the terpene of oil of orange) melts at 104°–105° C.

The two terpenes, therefore, seem to be closely related to each other, though not identical.

[Note by ED. AM. DR.—The concentration of the manufacture of santonin in the home of the mother-plant, Turkestan (see our November number, p. 204), where the future annual production of santonin is estimated at 32,000 pounds, will probably make it a profitable undertaking to separate the cynen on a large scale, for purposes of perfumery or flavoring-essence.

Levant wormseed, or santonica, contains about an equal percentage (1 to 2) both of santonin and of essential oil. Hence it should be possible to obtain about 32,000 pounds of the latter. The larger portion of the oil consists of cyneol, and every 10 parts of the latter yield very nearly 9 parts of cynen.]

Glycerin-Jelly for Microscopic Mountings.

IN place of fir, or Canada balsam, which has hitherto very generally been used for this purpose, glycerin-jelly may be used with great advantage. This must be prepared, for this purpose, with great care. The finest colorless gelatin is soaked in water until it melts, after the excess of water has been poured off, at the boiling point of water. The whole of the soaked gelatin is now melted in a glass-vessel by dipping the latter in boiling water, glycerin is carefully added by drops and thoroughly mixed with it, until the proportion is such that the mass, after having been allowed to become solid, will melt exactly 50° C. (122° F.). This point is important, because a glycerin-jelly melting at a higher temperature easily abstracts water from the object, and thereby may alter its natural appearance.—*Ind. Blätter.*

New Method of preparing Barium Permanganate.

BARIUM permanganate is an important salt, since it is the most suitable starting-point for making permanganates of other bases.

All attempts to obtain barium permanganate directly from manganic peroxide and barium salts have failed; but a satisfactory method was found by G. Rousseau and B. Bruneau in the decomposition of potassium permanganate by hydrofluosilicic acid, using the latter in slight excess. The mixture is kept cool, and after the separation of the potassium fluosilicate, the clear supernatant liquor is decanted, and the deposit drained on an asbestos filter and washed. The solution, containing permanganic and hydrofluosilicic acids, is saturated in the cold with barium hydroxide. The solution of barium permanganate, after separation of the insoluble barium fluosilicate, is evaporated until the salt crystallizes out on cooling. The crystals may be obtained in very large orthorhombic octahedra, almost black, with a violet reflection.—*Compt. Rend.* and *Journ. Chem. Soc.*

The Purity of Iodoform.

IN addition to the usual or possible impurities contained in commercial iodoform, which are readily detected by a systematic analysis or by the special tests given in the pharmacopœia, there appear to be often certain others present, the nature of which is not quite understood, and which have probably not been exactly identified. Dr. Brouma, in Leyden, was led to believe that the discordant results obtained by various experimenters with iodoform were, at least partly, due to the presence of certain impurities, and after having made a large number of experiments with *pure* iodoform which had been found to stand the (additional) test given below, he found that it did not produce the toxic symptoms reported by others or at least but rarely. The test is the following: A certain quantity of iodoform is shaken for some time briskly with distilled water, and the mixture then filtered. The filtrate is mixed with a little alcoholic solution of silver nitrate, and the mixture set aside for twenty-four hours. If the iodoform was impure, a black precipitate, consisting of reduced silver, will be formed, while, if the preparation was pure, there will only be a faint whitish-gray turbidity. All samples of iodoform which produced toxic symptoms, when tested in the above manner, reduced the silver solution.—*Journ. de Pharm. d'Als.-Lorr.*

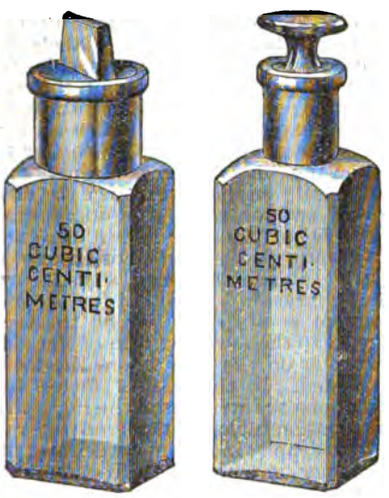
NOTES ON PRACTICAL PHARMACY.*

CONTAINERS AND THEIR CLOSURE.

THE vessels for the reception of medicine are made of glass, porcelain, clay, wood, and paper [and metals].

The *medicine* or *mixture bottles* are of glass, and of various sizes, corresponding to certain volumes measured either by fluidounces or by cubic centimeters.

[In European practice, it is often customary for the prescriber to designate the kind of bottle or receptacle in which a mixture or other medicine is to be dispensed. This is but rarely done here, except by physicians educated abroad, or in the case of certain substances affected by light which are directed to be protected therefrom, though the directions are frequently erroneous. Whatever shape is selected for the container, attention should be paid to the form of the lip, since its contour plays an important part in discharging the contents, in drops or otherwise, without allowing it to flow down the outside of the neck and soiling the outside of the bottle. What is known in this country as the "prescription lip" is the shape generally employed. In this, the orifice is beveled instead of flat, as in ordinary bottles.



In the U. S. Marine Hospital Service, where the metric system has been established as a basis for prescription and pharmaceutical work, a glass-stoppered vial is in use, which is shown in the above illustration (furnished by H. C. Fox & Son, Philadelphia). These vials have the capacity indicated by letters formed on the glass.]

For medicines containing substances decomposable by light, such as free chlorine, silver solution, dark bottles are used, or such as are coated with dark oil-paint or varnish, or with black, glazed paper. The darkened bottles [as well as all bottles and vials used for prescriptions] must be thoroughly cleansed, dried, and kept stoppered, so as to prevent the accumulation of dust in them.

[One disadvantage of perfectly dark and non-transparent bottles is that it is almost impossible to insure their absolute freedom from dirt or foreign substances. If the bottles are new, however, or the nature of their previous contents exactly known, the dispenser will sometimes prefer them even to the best unactinic glass in existence.

It is a very prevalent custom of prescribers to direct certain substances, such as nitrate of silver, santonin, etc., to be dispensed in blue vials; and it is even yet customary with certain chemical manufacturers to put up these goods in such vials, though they certainly must know that the color is no protection. This is an instance to show how hard it is to eradicate old habits, particularly of trade. Blue glass does not arrest the actinic or chemical rays of light at all, but it arrests (more or less) the luminous rays. Photographic galleries are sometimes entirely covered with blue glass, so that a stranger might suppose it impossible for a good picture to be taken in an apparently obscure place; and yet the result will prove as satisfactory as if the picture had been taken in the open air.

The best color to exclude the actinic rays is that deep orange-red imparted to glass by gold or copper. Gold-tinted (or gold-flashed) glass is rarely used for ordinary purposes, its principal uses being for ornamental glass-ware or for window-panes for photographic dark-rooms. Copper-tinted glass (likewise a kind of red-orange) is that usually sold, though it is not as commonly used as it ought to be. In place of it, the ordinary amber (dark- or light-brown) glass is employed, which is in practice sufficient, though it is *not* an absolute protection to the contents.

Of late years, it has become quite customary to employ bottles of special shapes and colors for dispensing poisonous liquids and solids. The shape of these is either triangular, or so-called "panel," or round, or fluted; and the color usually blue. Among the round blue bottles, those which are studded with a number of projecting diamond-shaped points are undoubtedly the most useful, since they enable a person to recognize such a bottle even in the dark. This idea has lately been carried still further, by supplying the market with cork-mounted glass stoppers provided with projecting points and edges, which are calculated to attract the attention of the person handling the bottle.

In the public hospitals of the city of New York, two kinds of so-called poison bottles are used. One is the usual commercial blue poison bottle which is used *only* for poisonous external medicines. The other variety is a similar bottle, made in the same moulds, of *white* glass, which is employed for all powerful or dangerous *internal* medicines. The chances of making mistakes are greatly reduced by using this kind of glass-ware.]

For jellies, electuaries, or ointments it is customary to use a *pot* or *jar*, a large, wide-mouthed vessel of glass, porcelain, or stone-ware. There are also ointment pots with elegant covers of wood and cork. The *powder* or *pill bottles* (salt mouths) differ from the ordinary bottles only by a larger opening. These are also supplied with elegant stoppers or lids [of wood or metal].

Of late, there are also to be had cylindrical glass vessels closed with a metallic screw cap. Inside the metallic cap is a plate of cork which, pressed on the mouth of the vessels by the force of the screw, effects hermetic closure.

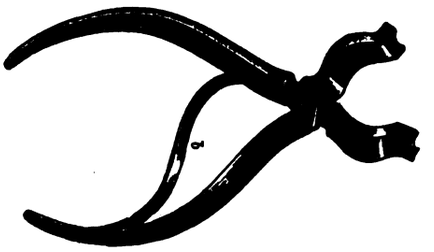
[Another container for ointments and cerates, which has come into general use of late years, is the collapsible tube of metal with a screw cap, similar to those used for artists' colors.]

A good substitute for the cork plate in the screw cap will be found in a paste-board disk saturated with paraffin. With this, the closure can be made more certainly air-tight. [For some purposes, small-sized so-called preserve jars, made air-tight by a rubber ring between neck and top, are preferable.]

The *boxes* for *powders* and herbs are round and have an overlapping lid; but those intended to contain several powder papers are square and open like drawers, or they have the form of pocket-books. They are called con volutes.

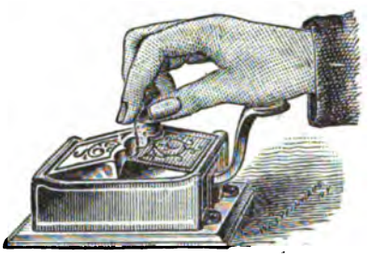
Prescription bottles are closed with corks, of which the better grades [so-called XX] should be selected. The inferior, worm-eaten, and porous ones should be discarded. In order to have the cork close tightly, select one the narrow end of which has a *slightly larger* circumference than the mouth of the bottle. It is improper to soften the cork and make it fit by pressing it between the teeth.

[Some persons do not realize how repulsive and expensive this practice is—repulsive at least to the customer who sees the dispenser chewing the cork, apparently for the purpose of cleaning his teeth, and then inserting the "salivated" cork in the vial containing his medicine. Expensive to the dispenser, as the same customer will certainly never return.] It should be beaten soft rather with



Cork-tong.

some weight or a pestle, but it is still more practical and handier to employ for this purpose the *cork-press* or *cork-tong*. The latter is unquestionably the handier for use. It is kept in the cork drawer. Where the end of the spring *b* rubs against the arm *a*, some oil should now and then be applied when it works hard. [A still better contrivance for squeezing corks is the cork-roller invented by Lochman, familiar to most pharmacists in the United States, and the cork-compressor illustrated in the adjoining figure. The principal advantage in the latter appliance is the fact that but one hand is required to hold the cork and operate the machine. By depressing the lever, the jaws exert a powerful grip upon the cork and relax their hold when pressure on the lever is removed.] The medicine bottle is thus closed with the cork: it is set down on the counter, held by the neck with the thumb and index finger of the left hand, and the cork inserted to half its length into the mouth of the bottle by a twisting motion with the right hand [towards the right]. It is not advisable to grasp the bottle in the whole left hand to cork it, because the vessel is not always strong enough to withstand firm pressure from without. For the same reason the bottle must never be held over the cork-drawer while it is being corked. After the cork is inserted, ascertain whether the closure is perfect, by inverting the bottle and striking the corked end several times against the palm of the left hand. Any escaped droplets are



* The basis of this series of papers is the latest edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany, and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [ ].

The use of the original text has been kindly granted by Mr. Hager.

easily recognized on the dry surface of the hand.

The larger corks should be kept separate from the smaller ones, for the jarring to which the cork-drawer is subjected causes the small corks to gravitate downward and the larger ones to accumulate at the top, whereby selection is rendered more difficult.

A sufficient number of containers, according to the extent of the business, should be cleansed of adhering straw, dust, sand, etc., and stored in the neighborhood of the prescription counter in the order of their capacity, lest the prescription clerk be delayed in his work by having to cleanse or search for them. It is, moreover, the duty of a prescription clerk to examine carefully every glass or other vessel before he uses it, for it must have no crack or defective neck, or be unclean. The removal of dust from the interior is done with a clean feather or a bottle-brush made of brass [or iron] wire, to the lower end of which bristles are fastened. Different sizes of such brushes should be suspended from nails near the prescription counter. Where there is a large trade, the vessels are kept on hand dusted, washed with distilled water, and dried. To keep the dust out, the bottles are kept closed with paper caps [or corks].

[For dispensing corrosive liquids, such as acids, caustic alkalies, and some of the caustic solutions of iron, iodine, etc., it is customary to use either stoppers of vulcanized rubber, or corks which have been soaked in melted paraffin until the pores of the wood are filled with the paraffin. These are less expensive than glass stoppers, and have the advantage of being adapted to a variety of bottles.]

Stone jars and pots, if necessary, are freed with an iron spatula from the sand and bits of glaze adhering to their inner bottom. [In this country it is not usual to select such rough and cheap ware for dispensing ointments and the like. Porcelain or delf-ware is usually preferred; or, where the contents are not affected by metal, neat tin boxes are employed, which may be had of all shapes and sizes, soldered or seamless. In fact, the variety of containers for all purposes of pharmaceutical dispensing and counter-trade is very large, there being a sort of rivalry among our manufacturers as to variety and good taste employed for this purpose.]

Every *envelope*, *bag*, *capsule*, or other paper-container, should be made of clean paper; it is best to select for this purpose white *smooth* qualities, as dry powders are liable to adhere to rough paper surfaces. For substances which readily absorb moisture, which are sticky or greasy, waxed paper, or, better, paraffined paper, is employed [and, if necessary, an outer wrapper of parchment-paper or of tin-foil is applied]. Where it seems indicated, the medicament is delivered sealed.

LABELS.

The label or directions for a medicine must be written legibly and strictly according to the statement on the prescription. The name of the patient is written above, the date at the lower margin, and between these the directions in full words. Even the numbers must be written in words. Besides, a label must contain the name and address of the druggist. It is not permissible to place any other personal remarks upon labels, and if directions are necessary as to the keeping, shaking of the mixture, etc., they might be given verbally to the messenger, or better be written on a separate piece of paper and put with the medicament. Where several prescription clerks are employed, the preparer should mark his name on the margin of the label, not conspicuously, but in small letters at the very edge of the label. [Some of these directions, though sanctioned by long custom and partly by official authority, are nevertheless capable of criticism and improvement. Indeed, the author himself recognizes the defects, and recommends something better. It is pure obstinacy and adherence to old fashion to use the flying paper strip, merely tied to the neck of the bottle, for the purpose of containing the directions. Nothing but a label permanently fastened to the bottle should be used. And it is unwise to trust such directions as: "Shake before using"; "keep in a dark or cool place"; "do not open near lights or fire," etc., to the messenger; they should invariably be written or otherwise affixed to the bottle in a conspicuous place, best perhaps across the slope of the shoulder, where the label will most prominently strike the person handling it. It is true that a defence of the loose paper strip label might be made by showing how easily it is detached when the bottle is needed for something else, and how frequently a *pasted* label is left on a bottle when it has been filled with entirely different contents (which often has led to serious results). Yet this cannot be helped. The object is, that the contents of a bottle containing medicine should be clearly and permanently indicated and identified by the label *as long as the bottle is in legitimate use* for this purpose. What becomes of it afterwards is not the concern of the dispenser.]

The paper for labels should have sufficient body, be *white* in the case of drugs for internal use, *pink* or *light blue* [in this country and others, a bright brick-red is preferred], if for external use. Labels which can be pasted to the walls of the vessel are to be preferred. For this purpose it is customary to keep on hand a small pot with mucilage of tragacanth (so-called gum-pot) and a small camel's hair brush sticking in it. [Tragacanth paste is too stiff for anything softer than a bristle-brush.]

[In the establishments (hospitals, infirmaries, etc.) where a large number of prescriptions have to be put up and kept on hand in the sick-room for the different patients, it is necessary to use special precautions so as to avoid accidents. In the course of an experience of many years, it has been found useful to establish the following rules, for instance, in the public hospitals of New York City:

1. Medicines for Internal Use.

a. Ordinary medicines for internal use, which even if taken by mistake in *one* dose, are comparatively harmless, are to be put up in the ordinary white or green glass-ware, and labelled with a *white* label, giving name of patient, number of prescription, ward, bed, and dose.

b. Medicines for internal use, which contain powerful ingredients, and which, if administered by mistake in *one* dose, would produce serious results, and hence necessitate more than usual care in their administration, must be marked, besides, with a red label containing the word "Care!"

c. Medicines which are *altogether composed* of one or more powerful ingredients, and which are usually administered in small doses, must be put in a *white* poison-bottle, with a label stating the nature of the contents, and an additional care-label.

2. Medicines for External Use.

a. Medicines for external use, and not calculated to act injuriously when by mistake administered internally, may be dispensed in the usual white or green glass-ware, but must be marked with a *Red Label*, giving name of patient, number of prescription, ward and bed, and bearing the words "For External Use Only."

b. When it is desired to draw special attention to the *contents*, or when a medicine for external use contains ingredients which would render its administration dangerous, an additional Care! label must be attached.

c. Medicines for external use, which are highly poisonous, corrosive, caustic, or otherwise injurious, must be dispensed in a *blue* Poison-Bottle, labelled with a *red* label.

These rules may at first sight look complicated to one unfamiliar with them; but they will be found to be easy of application. When the dispenser is in doubt as to which class a medicine belongs to, he will usually do best by rather classifying it with the more dangerous ones.

In regard to *red* paper for labels, it may be incidentally remarked that the ordinary poison-label paper which is coated red on *one* side only, is not to be recommended, since the color is apt to be washed off when a liquid comes in contact with the label. The best paper is that which is dyed red *in the pulp*, and therefore contains the coloring matter in its fibres. The red should be a bright, fiery red.]

When a prescription is to be repeated, and to this end the former vessel with the label is sent to the drug store, it is the rule to use a new label in place of the old one. On bottles the label is fastened so that it projects under the knot of the twine tied over the cap, for it does not look well if this knot is on one side and a signature on another side of the bottle. Labels for pill-vials are pasted on the side, for ointment jars on the cover, in the case of larger pots perhaps also on the side. [In our experience, it is under all circumstances advisable to paste the label on the *body* of the container, and not merely on the cover, since the covers of two or more containers may easily be misplaced. In addition, each cover may also be labelled or otherwise marked, when necessary, so as to prevent confusion.] The knot for the cap on pots is placed either on the side turned to the lower margin of the signature or on the side where the label is pasted. In the case of boxes, the directions are written on the lid, and a preparation inclosed in waxed paper is to be wrapped in another piece of writing paper on which the directions are written.

Pill vial with screw cap of Britannia metal.

In the drug stores of larger cities [in Germany] where a prescription-book is kept, the labels bear at their upper end a space intended to receive the number given to the prescription in the book. Underneath is this notice: "*If the prescription is to be repeated, it is only necessary to show the label.*" On the labels of some establishments we also find in the two lower corners the words "*paid*" and "*account.*" One or the other is cancelled by the prescription clerk, according to whether the prescription is paid for or not.

For pill-vials and vials to contain powder mixtures, labels for pasting are kept on hand. The paste consists of mucilage, as stated above.

As soon as a prescription is finished, it should at once have its label attached. Mistakes are very liable to occur if several prescriptions are first filled and then labelled one after another—a practice which unfortunately still prevails here and there.

CAPPING.

Medicine vessels, boxes excepted, are capped, that is, provided with a cap or cover. [This is frequently omitted in this country.—ED. A. D.] A cap should surround the margin of the mouth of the vessel snugly and as smoothly as possible. The cap consists of a double

Sealed cap.

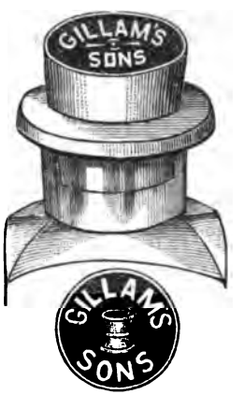
layer of paper. For the the top layer it is customary to use a glazed, colored (non-poisonous) paper; for the lower, a clean white thin paper; but for salves and electuaries [in place of the latter], waxed paper. When tying the cap, another piece of soft paper is laid over the external layer, lest the latter be soiled while being pressed down and smoothed with the hand. After the smoothing, the soft paper is removed and the cap fastened by two turns of twine. The ends of the twine with which the cap is tied may be sealed to the latter, which is a commendable practice.

[For the benefit of those who have not the skill to fold a paper cap handsomely, as well as to save time in the production of a handsome cap, the article known as "Hunt's Pleated Cap" will be found very useful. They can be had in all colors, and, if desired, with the word "poison" or an address printed on them.

Another useful cap is made of rubber in the form shown adjoining. It is especially serviceable for bottles that have to be packed in a travelling bag or instrument case, and insures against escape of their contents. It is made of various sizes, holding from one-half to two teaspoonfuls, and can be used, if occasion requires, for a dose measure.

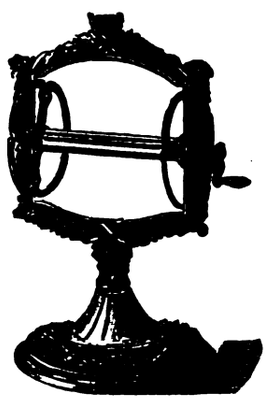
Still another elastic cap is shown here. This avoids the necessity for using another stopper, as it is alone capable of retaining the contents of the bottle to which it is adapted.

Instead of using a cap which covers the cork and neck of a bottle, as above described, many pharmacists use a circular label which is pasted on the upper end of the cork, and forms an elegant finish. These usually bear the name of the dispenser, and sometimes his address. They are more quickly applied than the sealing-wax, and are not so liable to become detached in use.]



On boxes the seal joins the lid to the body, for which a small drop of sealing wax suffices. The "convolutes" are wrapped in paper and the latter sealed. The twine for tying caps may be either white, bleached or colored, 0.7 to 0.8 millimeters thick. It is generally wound on spools and kept in one of the drawers of the prescription counter or in a box. The double twine box is intended to contain two thicknesses of twine.

The twine reel may contain one or more reels, each of which has a handle to facilitate winding up. The foot is of zinc and very heavy. The frame and the small cutting blade for the twine are of iron.



Twine reel.

[Equally serviceable is a heavy bell of glass holding a ball of cord; no bottom is required, the counter or shelf on which it stands serving as a support. A hole in the top of the bell gives exit to the free end of the twine. In using a twine-ball, the inner extremity of the twine should be drawn from the opening in the ball, and the outer end should not be disturbed. This permits the ball to remain of the same external dimensions until the twine is nearly used, and, moreover, prevents snarling.]

(To be Continued.)

Universal Varnish.

CAMPE recommends the following varnish as equally suitable for paper, metal, wood, etc.

Mix 60 parts of bleached shellac, 60 of Manilla copal, 60 of mastic, 15 of Venice turpentine, and 1000 parts of alcohol (92 to 95 per cent); add a little coarsely-powdered glass, and allow to stand about two weeks, frequently shaking. Then add *1 part* of boric acid (which renders the varnish still harder), and filter. [Filtration of alcoholic solutions of resins is best facilitated by mixing the turbid liquid with a little plaster of Paris which envelops the suspended impurities.—ED. A. D.] The filtered varnish may be colored by alcohol-soluble anilin colors, and in this condition serves as fancy varnish or lacquer for coating bottle-caps, tin-boxes, etc.

The Manilla copal should be powdered, the author having made the observation that copal, after having been powdered and then exposed to the air for some time, is much more rapidly soluble in alcohol. The addition of 1 part of alcohol-soluble aniline orange to 100 parts of the varnish makes a very handsome gold-lacquer.—*Rundschau.*

Gelatinous Phosphate of Calcium.

IT is well known that the ordinary tribasic phosphate of calcium, in dry powder, is but slowly and sometimes imperfectly soluble in dilute acids or in the gastric juice. If, however, it be in a freshly precipitated or gelatinous condition, the opposite is the case, it being then quite easily soluble.

Such a gelatinous tribasic phosphate may be prepared by the following simple process given by C. Tanret, which consists in adding one molecule of lime to the ordinary acid phosphate of calcium.

$$\underset{\text{Acid phosphate of calcium}}{CaH_4P_2O_8} + \underset{\text{lime}}{2CaO} = \underset{\text{Tribasic phosph. calcium}}{Ca_3P_2O_8} + \underset{\text{water}}{2H_2O}$$

The requisite quantity of acid phosphate of calcium (theoretically 234 parts) having been dissolved in water, an equivalent amount (theoretically 112 parts) of lime or (148 parts) of slaked lime (CaHO) is dissolved with the aid of sugar or syrup, and the two solutions then mixed. There results a precipitate which is so gelatinous that 1 gramme of it added to 100 grammes of water will in twenty-four hours scarcely settle enough to leave a small layer of liquid on the surface. As the acid phosphate of calcium is very hygroscopic, and generally contains an excess of water, and as the calcium hydrate is generally impure, it will be of advantage to use the following proportions which have been found to work well in practice: 2 parts of crystallized phosphate of calcium, and 1 part of slaked lime, which will yield about 2 parts of the gelatinous tribasic phosphate.—*Journ. de Pharm.*

Antiseptic Gauze.

PLEVANI, of Milan, prepares antiseptic gauze in the following manner:

Two hundred parts of Burgundy pitch and 100 parts of stearin are dissolved in 2,000 parts of alcohol, and 180 parts of carbolic acid added. This quantity, in *grammes*, is sufficient to impregnate 80 meters (87 yards) of gauze. The latter is first laid into a square pile, pressed into a zinc trough, heated for several hours in a steam-bath, and then impregnated with the mixture. After having remained a few hours longer in the warm trough, it is pressed. A few minutes' exposure to the air is sufficient to dry it enough to enable it to be rolled and wrapped in parchment paper.

[The above formula is quoted in one of our exchanges (from *L'Orosi*) as having been specially designed with a view to cheapness. At the price of alcohol in this country, and with the impossibility of obtaining any alcohol for such purposes with the duty remitted, the above formula is, of course, quite expensive. We have had large experience in making gauze, and have published our formula several times; yet, without special apparatus to recover at least a portion of the alcohol, the resulting gauze generally cannot compete in price with that made by the large manufacturer, who does *not* use alcohol or but little of it.—ED. A. D.]

The Essential Oil Industry at Grasse.*

THE fame of Grasse is founded upon the essential oils obtained there from wild or cultivated plants. Of the former may be mentioned:

1. *Lavandula Spica* Chaix, *aspic* in French, which is found abundantly about Grasse and in the contiguous districts.

2. *Lavandula vera* D. C.; occurs in higher, mountainous localities.

Both of these lavenders possess strong woody and, no doubt, very hardy stems. Still stronger are those of

3. *Thymus vulgaris* L., a perfect ornament of the mediterranean region, where it may be met with abundantly, though not at high altitudes, in the open woods of the mountains, as well as in the sunny coast districts.

4. *Rosmarinus officinalis L.* The upright, though always crooked stems of this labiate plant or shrub, growing to a height of 2 meters, and often several centimeters thick, are certainly not equalled by any other European species of this family.

The oils of these plants form important articles of export at Grasse. They require no cultivation, since the young leafy or flowering shoots, which are removed by the distillers, constantly renew themselves. The great oil houses of Grasse make contracts with the villages of the surrounding country, which latter thereby acquire the privilege of working certain large districts. The distillation is carried on by peasants, who erect their stills at the place where the plants are most abundant, and who deliver the oils in the city. Many of these perambulating stills (*alambics voyageants*) are owned by the large houses in Grasse. This method of doing business is probably quite old.

Prof. Flückiger was informed by Mr. Roure, one of the largest dealers at Grasse, that the annual amount of these oils exported from Grasse is about the following: of *Lavandula vera*, 80,000 to 100,000 kilos; of *Thymus vulgaris*, 40,000; of *Lavandula Spica* and of *Rosmarinus*, each 20,000 to 25,000. The quantities exported from Grasse are probably sufficient to cover the demand of the whole world; excepting perhaps the oil of rosemary, of which about 20,000 kilos are produced annually in Dalmatia.

Of the oils which are prepared, not by villagers, but in the laboratories of the manufacturers, those of the genus *Citrus* are chiefly to be named, particularly *oil of neroli*. The flowers of *Citrus vulgaris* Risso, which contain only about one-tenth per cent of this oil, are not subjected to distillation with the primary view of obtaining this oil, but really to obtain the enormous quantity of orange-flower water for which Grasse is so celebrated. The oil of neroli is only a by-product, but a very valuable and costly one. According to Mr. Roure, about 2,000 kilos of this valuable oil are annually obtained, yet the quantity which is exported is very much larger. Any one willing to pay the price can ob tain pure oil of neroli, but the perfumers and wholesale druggists, when sending their orders, usually limit the price more or less. Hence, in order to satisfy these customers, the producers add "essence de petit grain," which is, however not any longer distilled from the "petit grains," that is, the small unripe fruits of the bigarade-orange tree, but from the *leaves* of the latter. No other species of *Citrus*, indeed, is so richly provided with fine aroma, even to the leaves, as the bitter-orange tree, "le bigaradier."

The flowers of the sweet-orange tree yield a much less valuable oil, and are not usually subjected to distillation. The sweet orange plays but an insignificant rôle at Grasse alongside of the bitter, and the bergamot and the lemon do not occur there at all.

Large receptacles (tin canisters and cisterns of masonry) are provided for the reception of rose-water. The small quantity of oil of rose obtained during the distillation of the many thousand kilos of roses is probably of as fine a quality as that obtained in the Balkan or in India, yet, in spite of the nearly equal geographical latitude with the latter, the Provence oil of roses contain much more of the solid valueless constituent, which is kept in solution by the liquid portion, to which alone the aroma is due. Every 12,000 kilos of roses produce about 1 kilo of the oil. Demands of customers which exceed the domestic production are supplied by furnishing Turkish oil.

Oil of orris, or orris-butter ("*beurre d'iris*"), is justly a great favorite with perfumers. This oil excels many other fine aromas by the great durability of its pleasant and mild odor. Even with the most careful operation, not more than about one-tenth per cent of it can be extracted from orris-root. The above-named firm prepares annually from four to ten kilos only. An equal quantity is probably also distilled in Leipzig and in London. In Grasse, the kilo of *beurre d'iris* costs 1,500 to 1,800 francs, and curiously enough, the manufacturers obtain their supply of orris-root from Florence and Verona, while it is quite certain that *Iris germanica* and other species of *Iris* would equally well thrive upon the hills and mountains of the lower Provence, as in Tuscany or about Verona.

Besides the immense industry connected with the distillation of the oils so far described, some other aromatic products are occasionally worked for their aromas, but their quantity is unimportant. But the next greatest source of profit is the extensive manufacture of pomades (*pomades*) and extracts (*extraits*), which are obtained either from such flowers as contain but small proportions of essential oils, namely, first, the already mentioned bigarade flowers, from which oil of neroli is obtained, and second, the rose. Or from those which contain such minute proportions that it would be practically impossible to collect it by distillation. Such are:

1. *Cassie*, which is the French name of the small handsome yellow flower-heads, of *Acacia Farnesiana* Willdenow, a small tree which was first transplanted from the West Indies and Central America into the Farnesian gardens of Rome.

The fine odor of the flowers led to their introduction into the Provence, which appears not to have taken place, at least for industrial purposes, before 1825. At present, "*Cassie*" is very carefully and largely cultivated in the whole district between Cannes and Grasse: The trees are kept small; the plantations are frequently owned by the manufacturers or other land-owners, and are cultivated by tenants, who hold their lease under the very simple and ancient custom to pay half the produce of the farm. The same system applies there also to the aromatic plants below described, as well as to olives, and seems to have great advantage in spite of the difficulty of controlling the yield. Prof. Flückiger received the assurance from the owners that the honesty of the tenants in these regions could be actually relied upon, and that the system was profitable to the owners in spite of their having to pay taxes and to foot the expenses of repairs.

2. *Jasmin.* Though the fields near Grasse are planted with *Jasminum officinale* L., which was probably first brought to Italy during the sixteenth century from Western Asia or India, yet it has been found more advantageous to graft upon it another Indian species, *Jasminum grandiflorum* L., having larger and more aromatic flowers, which probably had been brought to Europe already before the time of Rheede. This plant is very tender, requiring to be protected during winter even in such a fine climate as that of the Provence, by covering the small shrub with earth. As only the flowers are of importance, the plants are kept small and planted close together in regular rows. During Prof. F.'s visit (April), the young shoots were pruned, which required considerable labor. The plant flowers in August. Under these circumstances, it might be advisable to try experiments with *Jasminum Sambac* Vahl, which has a still stronger aroma, and is also esteemed higher in India.

3. *Jonquille. Narcissus Jonquilla* L., probably of oriental origin, bears two to five very aromatic yellow flowers, with short, funnel-shaped tube. The name of the species (Ital.: *Giunchiglia*) refers to its almost cylindrical rush-like leaves, which somewhat resemble those of species of *Juncus*.

4. *Reseda*, from *Reseda odorata* L., a common garden-plant throughout Europe, and said to be originally from Egypt.

5. *Tuberose. Polianthes tuberosa* L., an amaryllidaceous (Mexican) plant, from the section of *Agaveæ*, the handsome white flowers of which have caused the selection of the genus-name (πολιός, white or gray). Its Mexican name is *Omizochitl*, or bone-flower. It has been a favorite ornamental plant in Europe since the last century, and is nowhere cultivated in larger quantities than near Grasse.

6. *Violet. Viola odorata* is not grown in open fields like the other perfume plants, but in the open olive groves extending in great beauty over hill and dale.

These are all the odorous plants which form the object of the industry of Grasse, and there appears to be no desire either on the part of the makers, or the consumers, to introduce new fashions, either in form of new processes, or of additional products.

The "pomades" are prepared in two ways, either by "infusion," or by "enfleurage." [On these see especially NEW REM., vol. vi., 1877.] In spite of the scrupulous care bestowed upon the preparation of the "infusions à chaud" (warm infusions), the odorous fats still retain the disagreeable property of gradually becoming rancid. It might be supposed that this could be avoided by employing, in place of fat, the unchangable paraffin in the form of Unguentum Paraffin of the Germ. Pharm., or in form of the American petrolatum (vaseline, etc.). Yet Mr. Roure assured Prof. Flückiger that this is by no means the case. The exact reason *why* it is unsuitable is not known. [It is undoubtedly due to the fact that vaseline, petrolatum, or any other similar compound are likewise prone to become rancid through a sort of oxidation process, as has repeatedly been proved by different experimenters.—ED. AM. DRUGG.] Yet the unsuitability of paraffin is so decided that it spoils the pomades even when only added to them.

When the most delicate and fugitive aromas are to be extracted the process of enfleurage is used (see NEW REM. for 1877).

A portion of the pomades obtained either by infusion or by enfleurage is used in the preparation of the aromatic extracts ("extraits"), that is, the alcoholic solutions of the odorous matters obtained from the pomades. For this purpose, the latter are placed in copper drums in which they are agitated for hours with alcohol, by means of a stirring apparatus. When the alcohol, which has taken up the aroma and scarcely any fat, has been separated, the fat is put into stills in order to recover the alcohol retained by it. But the fat itself can no longer

* Abstract of an article by Prof. F. A. Flückiger in *Arch. d. Pharm.*, 1884, 473.

be used for *pomades*, at least it is not found practical to use it again; hence it is sold to soap-makers.

Simple Filter for obtaining physiologically pure Water.

UTILIZING the method by which Pasteur, in his laboratory, secures the complete separation of germs or microbes from water, namely, by causing it to pass through a porous vase made of unenamelled porcelain, Ch. Chamberland suggests the following way of securing pure water: The water as it is delivered under pressure (say of about thirty pounds) is made to enter a porous tube, of nearly eight inches in length and one inch in diameter, which will permit about forty quarts of water to pass through its walls, under the above conditions. It is only necessary to multiply the tubes in order to obtain a larger supply. The tubes must be connected in such a way that the water is made to pass from the outside to the inside, where it flows off into a receptacle. It is, therefore, quite easy to clean the tubes, since only their outer surface is coated with the suspended matters. The cleaning may be performed either by scalding them with boiling water, or by heating them in an oven to destroy all organic matter.—After *Rép. de Pharm.*

FILTERING LIQUIDS WHICH ARE EASILY DECOMPOSED BY AIR.

THE accompanying illustration exhibits the manner in which a rapid filtering apparatus, devised by Vollmar (F. A. Vollmar Sohn in Kempten, Rheinish Prussia) operates.

The filter is hermetically closed while working. It is lined, inside, with filtering paper, and the filtration takes place so that that the turbid liquid enters the filter below, passes through the paper, and is discharged clear at the top, where a pipe conveys it into a receptacle. This arrangement is of special service for filtering wines or other delicate liquids which should not be long exposed to air. A siphon inserted into the cask containing the turbid liquid, which stands on an elevated place, conveys the liquid to the filter, and from there it flows into the new receptacle. If the liquid is very sensitive to air and a layer of oil cannot affect its flavor, some pure olive oil may be poured into each cask, and the delivery tube leading from the filter be pushed down to the bottom of the receiving cask. In this way the liquid is absolutely protected from contact with air.

Application to Malodorous Feet.

THE last edition of the German Pharmacopœia contains a *Pulvis Salicylicus cum Talco* which is specially intended to be used as an application to malodorous feet, and was introduced primarily for use in the German army. Since its use, in the loose powder-form, however, has been found to be rather disagreeable, owing to its dustiness, and as it is not quite effective enough, the German War Department has adopted as a substitute for it the following paste:

Salicylic acid.....	2 parts.
Tincture of benzoin.....	5 "
Benzoated mutton tallow.100	"

The salicylic acid is dissolved in the tincture of benzoin, and the solution added to the melted tallow, which is prepared by digesting 100 parts of mutton tallow with 5 parts of benzoin. After the mass has been stirred a few times, it is poured out into suitable tin boxes.—*Drog. Zeitung.*

Determination of Nitrates.

MR. ARNOUD in *Comptes Rendus* describes a mode of determining nitric acid by precipitation as cinchonamine nitrate which is applicable to the determination of the nitrates contained in natural waters and in plants.

Cinchonamine nitrate is almost insoluble in water acidified with from 10 to 15 per cent of hydrochloric acid. It is therefore very easy to detect the nitrates qualitatively by bringing the solution to this condition. But for an exact determination it is impossible to employ this means, as, in drying, the acid becomes concentrated, and finally attacks not only the paper of the filter, but the cinchonamine nitrate itself.

After many attempts the author has succeeded in obtaining very good results by operating as follows:

The liquid containing the nitrates is neutralized with soda if acid, and with sulphuric acid if alkaline, the essential point being to obtain neutrality. The chlorine of the chlorides, if any are present, is eliminated with silver acetate, any excess of the latter being removed by the addition of a few drops of sodium phosphate. The filtrate is then evaporated almost to dryness, and filtered anew if it is not absolutely clear, acidulated very slightly with a drop of dilute acetic acid. The liquid is then precipitated at a boil with a hot solution of cinchonamine sulphate. Cinchonamine nitrate falls down immediately in a crystalline state. It is let stand for twelve hours in a cool place. It is then brought upon a filter and washed with an aqueous solution of cinchonamine nitrate, saturated at the temperature of the atmosphere so as to remove any cinchonamine sulphate.

The object of this method of washing is to avoid dissolving any trace of the cinchonamine nitrate, however slight. Pure water, employed instead, would dissolve about 2-1000ths of its weight of the cinchonamine nitrate. The precipitate is dried at 100° and weighed, being perfectly pure.

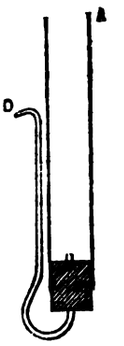
Cinchonamine nitrate has the formula, $C_{19}H_{24}N_2O,NO_3H$.

Its high molecular weight is advantageous for the determination of nitric acid, as 359 parts cinchonamine nitrate represent 54 parts nitric acid, 101 potassium nitrate, or 82 parts calcium nitrate.

In this manner the author has determined the nitric acid contained in natural waters in the state of nitrates, probably as calcium nitrate, and has obtained at different times perfectly accordant results. For well-waters he evaporates one liter of the sample to dryness, takes up the residue in alcohol at 40 per cent, and expels the alcohol by evaporation in the water-bath. The aqueous solution resulting from this treatment contains all the nitrates as well as a certain quantity of chlorides. The analysis is continued as indicated above.

For determining the nitrates contained in plants the procedure is slightly modified. The plant is triturated and exhausted with boiling water. The liquid is evaporated to the consistence of an extract and redissolved in alcohol at 40 per cent. The alcohol is expelled by evaporation on the water-bath, and in the liquid resulting the chlorides are eliminated by the addition of a small quantity of neutral lead acetate, any small excess of which is removed by means of a few drops of sodium sulphate. In the filtrate the nitrates are determined as above.—*Chem. News.*

TAKING THE SPECIFIC GRAVITY OF POROUS BODIES.



G. FLEURY proposes to ascertain the specific gravity of porous substances by measuring the volume of metallic mercury which they displace when immersed in the latter. The specific gravity thus obtained is, of course, only apparent, or that of the body in its unbroken condition. When the substance is powdered, its specific gravity will be quite different. The author uses for the determination a simple apparatus made of a wide and of a narrow glass tube, of the shape shown in the cut. The substance is to be given an octagonal prismatic shape of the volume of about 10 cubic centimeters, terminating at one end in an octohedral pyramid. The apparatus having been filled with mercury until the latter runs out from the lateral aperture at *D*, and all remaining gas-bubbles having been removed by means of a piece of iron wire, the substance is slowly pushed below the surface of the mercury by means of a wire, and the displaced mercury, which flows from *D*, caught in a suitable measuring vessel. The temperature of the mercury having been taken account of, the true volume of the same, corresponding to a certain temperature, is easily ascertained, and, by dividing the weight of the body by the volume of mercury displaced, the specific gravity of the former is ascertained.—*Journ. de Pharm.*, 1884, Oct., p. 255.

Remedy for Gout.

DR. J. MORTIMER GRANVILLE publishes in the *Lancet* (Aug. 10th, p. 272) a prescription for the relief of gout, which he states gives satisfactory results in acute and subacute gout, relieving the pain almost immediately, reducing swellings, and raising the proportion of urea in the urine from 50 to 100 per cent. The formula he gives is as follows:

Ammonii chloridi.....	ʒ iv.
Potassii chloratis.....	ʒ i.j
Glycerini.....	ʒ xij.
Tincturæ Iodi	ʒ ij.
Aquæ ad.....	ʒ xij.

Misce.

The dose is two tablespoonfuls every third, fourth, or sixth hour.—*Pharm. Journ.*

Bulrush-Wood Bandages.

IN neighborhoods where it is plentiful, the wood of the bulrush is employed by the poor for dressing wounds. Dr. Klammann finds that it answers for this purpose remarkably well, since it is not only an excellent absorbent, but, being very soft, fits itself admirably to the joints. The best time for gathering the wood is autumn or winter.—*Deutsch. Med. Zeit.*—*Chem. and Drugg.*

[It is possible that it is the wooly top of the bulrush which is easily disintegrated, and not the woody stalk that is meant.—ED.]

Refining Sugar and Molasses by Means of Concentrated Acetic Acid.

PURE sugar scarcely dissolves in concentrated acetic acid, whilst all the impurities of cane-sugar are readily soluble in it. In the present process, dry cane-sugar is heated at about 70° in closed vessels, with 50 to 70 per cent of its weight of concentrated acetic acid, or molasses concentrated to 45 to 50°B., with 75 to 90 per cent. When cool, the acetic acid is poured off, and the sugar machined and dried, when it is ready for the market. The acetic acid is recovered by distillation.—A. WERNICKE, *Bied. Centralbl.* and *J. Chem. Soc.*

White-Wash as Coating for Iron Pipes and Apparatus.

MILK of lime is recommended as a very durable and superior coating for such iron apparatus and surfaces (stove-pipes, hoods, etc.), as are much exposed to heat. The surface of the iron must first be thoroughly cleaned from rust, and the first layer of white-wash immediately applied. This causes the immediate production of rust to which the lime strongly adheres. Further coats of lime are then applied, and may be renewed from time to time.—*Erfind. and Erfahr.*

Disinfecting Mixtures.

GAWALOVSKI suggests the following mixtures for disinfecting purposes:

	PARTS.
1. Crude permanganate of sodium	2
Sulp. of iron (ferrous)	45
Water	53
2. Chloride of zinc	2 or more.
Water, acidulated with hydrochloric acid, to make	100
3. Anhydrous nitrate of copper	7
Chloride of sodium	1
Sulphuric acid (strong)	1
Water	91
4. (As disinfecting powder:)	
Sulph. of iron (ferrous)	20
Sulph. of calcium, dry	75
Carbol. acid, crude, 90%	5

—*Pharm. Rundschau* (Leitmeritz).

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,376.—**Hessian Crucibles** (St. Louis).

You will always find a large depôt of Hessian Crucibles at the leading dealers in chemical apparatus in New York (see our advisement columns). There are various places in Germany where they are manufactured, and if you need special sizes, it might be well to correspond with one of the manufacturers, as, for instance, Julius Gundlach in Cassel (Hessen, Germany).

No. 1,377.—**Syrup of Hypophosphite of Iron, Quinine and Strychnine** (C. B. E., California).

Certain physicians not infrequently prescribe preparations like the above merely by title, and rely upon the pharmacist to dispense either the preparation of some well-known manufacturer, whose name is often expressly indicated on the prescription, or at least one of the same strength in active ingredients.

As a general rule, it is customary to adjust the strength of preparations containing the above ingredients so that they contain, in one teaspoonful, 1 to 2 grains of the iron salt, 1 grain of the quinine salt, $\frac{1}{15}$ grain of the strychnine salt.

As it is probably immaterial whether the alkaloids be in the state of hypophosphite or that of any other salt, the sulphates may be used without hesitation. Hence the following formula will answer.

Solution of Hyposulphite of Iron (N. Y. and B. Form.)	768 min.
Sulphate of Quinine	128 grs.
Sulphate of Strychnine	2½ grs.
Citric Acid	2 fl. dm.
Water	2 fl. oz.
Syrup, enough to make	16 fl. oz.

Dissolve the alkaloidal salts in the water with the aid of the citric acid and a gentle heat, and add the solution to eight fluidounces of syrup. Then add the solution of hypophosphite of iron and enough syrup to make one pint. The product contains in one fluidrachm, one grain each of hypophosphite of iron and of sulphate of quinine, and $\frac{1}{15}$ grain of sulphate of strychnine.

If hypophosphite of quinine and strychnine are absolutely required, then the following method will yield the quantities necessary for a pint of the above syrup, corresponding to one grain of hypophosphite of quinine, and $\frac{1}{15}$ grain of hypophosphite of strychnine in the fluidrachm:

Calcium Hypophosphite	50 grs.
Quinine Sulphate	184 "
Strychnine Sulphate	2⅘ "
Water	2 fl. oz.
Alcohol	8 "

Dissolve the calcium hypophosphite in the water, and filter the solution. Then dissolve the sulphates of quinine and strychnine in the alcohol, mix the two solutions, and shake frequently during one hour. Strain the mixture through a piece of densely woven linen or muslin, and express as much as possible. Filter the expressed liquid and evaporate it to nearly dryness. Then re-dissolve the whole with the aid of citric acid, and prepare the syrup as before.

The formula for the solution of hypophosphite of iron will be found elsewhere in this number.

No. 1,378.—**"Calisaya and Soda"** (W.).

This beverage has been in fashion for a long time. It is usually prepared by drawing soda into a tumbler into which about one-half fluid ounce of calisaya elixir has previously been poured.

No. 1,379.—**Curry Powder** (C. W., New York).

One of our reference works has the following, though we have strong reason to believe that the true formula for genuine curry has never been published.

Coriander, 6 drachms; turmeric, 5 scruples; fresh ginger, 4½ drachms; cumin seed, 18 grains; black pepper, 54 grains; poppy-seed, 94 grains; garlic, 2 heads; cinnamon, 1 scruple; cardamom, 5 seeds; 8 cloves; 1 or 2 chillies; half a cocoanut ground; all but the last to be ground on a stone.

No. 1,380.—**Manufacture of Alcohol, etc.** (W. S. J.).

The work which you refer to has the following title: *Handbuch der Spiritusfabrikation*, von Dr. Max Maercker. (Third edition. 8vo, Berlin. *m.* 22.50). This is one of the most complete works on the subject, and comprises the improvements in apparatus and processes down to the present year.

Another equally valuable work is the following: *Gährungs-Chemie für Praktiker*, von Dr. Joseph Busch [Chemistry of Fermentation]; in 4 parts. 8vo, Berlin. 1. Yeast, etc. 8*m.* 2. Malt, Extract of Malt, and Dextrin. 8*m.* 3. Beer. 12*m.* 4. Alcohol and Compressed Yeast. 12*m.*

No. 1,381.—**Solution of Hypophosphite of Iron** (E. S. O.).

A formula for this is contained in the New York and Brooklyn Formulary. It is as follows:

Sulphate of Iron and Ammonium	924 grs.
Hypophosphite of Sodium	608 "
Citrate of Potassium	600 "
Glycerin	1 fl. oz.
Water, enough to make	6 "

Dissolve the sulphate of iron and ammonium and the hypophosphite of sodium each in 8 fl oz. of water, and, if necessary, filter the solutions separately. Then mix them, set the mixture aside for several hours, transfer the resulting magma to a close linen strainer, and wash the precipitate with ten (10) fluidounces of water. Allow it to drain, and express it forcibly. Transfer the precipitate from the strainer to a mortar, add to it the citrate of potassium, and triturate until a perfectly smooth paste results. Then add the glycerin, and gradually, while stirring, enough water to make the product measure six (6) fluid ounces. Filter if necessary, and keep the solution in small, well-corked vials, which should be completely filled.

NOTE.—The theoretical quantity of hypophosphite of iron resulting from the reaction between the ingredients above given is 480 grains, and in practice, this is very closely obtained. One (1) grain of hypophosphite of iron is, therefore, contained in six minims of the solution.

No. 1,382.—**Artificial Peach Essence** (W. H. R.).

According to some authorities this may be prepared by mixing:

Acetate of ethyl	5 parts.
Formate of ethyl	5 "
Butyrate of ethyl	5 "
Valerianate of ethyl	5 "
Œnanthate of ethyl	5 "
Sebacate of ethyl	1 part.
Salicylate of methyl	2 parts.
Glycerin	5 "
Aldehyde	2 "

It is, however, well to remember that, by following such semi-scientific formulæ, a good product is but *seldom* obtained. Many of these formulæ have been written down without having been actually carried out in practice. Our correspondent will, no doubt, find it cheaper, instead of attempting to prepare this compound from the above ingredients (some of which, we believe, are not readily obtainable in the market) to purchase the essence ready made.

No. 1,383.—**Violet Ink** (Apprentice, Wilmington, Del.).

Any fine water-soluble anilin violet will answer for this purpose. The best plan is to order or purchase it with the specification "for violet ink." Dealers will then usually supply the most suitable.

The best proportions for making the ink are: one part of the anilin violet, three parts of glycerin, and six parts of best gum arabic dissolved in ninety parts of water (or, according to Hager, in a decoction of quillaia or soap bark). A little oil of cloves may be added to prevent mould.

No. 1,384.—**Color of Fresh and Old Gentian Root** (F. W. K.).

Fresh gentian root is yellowish-gray externally, and white or nearly so internally. Some species have a more or less deep tint externally. On dry-

ing, the external portions gradually become darker, and proportionately also the inner portions. In moderately old roots the exterior is dark reddish-brown, and this tint darkens still more in very old roots especially if they are exposed to light.

No. 1,385.—**Plastic Clay** (B. A. E., Shamokin, Pa.).

We infer from your letter that modelling clay is what you refer to. This can be had of dealers in artist's materials in most large cities. See our advertising columns for addresses of such houses.

A very serviceable clay for modelling can be made by mixing a small amount of glycerin with finely ground clay, free from grit, this prevents too rapid evaporation of moisture and keeps its in condition for working.

No. 1,386.—**Vinegar from Acetic Acid** (R. C. Mch.).

Glacial Acetic Acid (not below 99%).... .....15 parts.
Alcohol. ..... 1 part
Water.....235 parts

Mix and set aside for a few weeks—the longer the better—when enough acetic ether will have been developed to give it the full, clean aroma of fine vinegar.

If officinal acid is used, the proportions will be:

Acetic Acid .....42 parts
Alcohol..... 1 part
Water..... .208 parts

Caramel may be used for coloring if desired, but anilin colors should not be employed under any circumstances.

No. 1,387.—**Use of Capital Letters in Naming Chemicals and Drugs** (W. U. Z.).

"Is it wrong when writing the names of drugs and chemicals to begin them with capital letters?"

This depends sometimes on the degree of emphasis which is desired to give to the terms. In a working formula it is quite usual to employ capitals, as may be seen in the last U. S. Pharmacopœia. On the other hand, in the case of substances incidentally mentioned in the course of a sentence, and when there is no occasion for emphasis, it is the general custom to use small initials, the same as would be done with other common nouns or adjectives. In the case of *botanical* names the custom varies. English plant-names, of course, follow the usual rules of orthography. Scientific plant-names, however, such as Hyoscyamus, Conium, Piper, etc., are, by most authors, begun with a capital letter; and we think this to be the proper course.

No. 1,388.—**Foreign Drug-Clerks in Germany** (N. S.).

Since the beginning of 1883, the German Bundesrath (Parliament) has published an ordinance which permits the employment in German pharmacies of only such assistants as have, in addition to passing the usual professional examination, completed their studies at a "gymnasium" (high-school), and acquired their pharmaceutical knowledge in a German pharmacy.

The chief object of this ordinance was to alleviate the evils incidental to an excessive supply of young pharmacists, and to provide chances for those who had passed through German schools, instead of taking apprentices from beyond the borders. There is no expectation that this ordinance will be repealed for some time to come.

No. 1,389.—**Artificial Methylic Alcohol** (W. H. R., New York).

The correspondent desires information as to how to make an artificial methylic alcohol, or, as he expresses it, an "imitation of methylic alcohol." Now this body is under all circumstances artificial, that is to say, it does not exist naturally, but is the product of chemical action. It is obtained as a by-product in several industrial processes, such as the distillation of wood and the manufacture of sugar from beets. It has also been made by synthesis—that is, by bringing together the elements of which it is composed, or by starting with organic compounds which had themselves been made synthetically. Some of these are:

1. Marsh-gas converted into methyl chloride, which is then heated with solution of potassa to 100° C. (Berthelot).

2. Hydrochlorate of methylamine is heated with silver nitrite (Linnemann).

3. Dry calcium formate, when distilled, yields, among other substances, methylic alcohol.

No. 1,390.—**Puts Pomade.**

A correspondent writes that a preparation having properties quite simular to that sold under the above title may be made of:

Rotten stone (levigated)...1 part.
Subcarbonate of iron.....3 parts.
Lard or olive oil, sufficient to make the resulting product of the consistency of lard.
Oil of bitter almond, q.s. to perfume.

Another writes us that oleic acid is an excellent vehicle for the combination of the polishing powders, and preferable to the ones above mentioned.

No. 1,391.—**The Chemistry of Antipyrin** (O. H. J. and others.)

Dr. Ludwig Knorr has recently published the long expected paper giving an account of the chemistry of new antipyretic remedy *antipyrin*, from which we select the following as the salient points for the benefit of our correspondents:

The author has discovered a series of bodies, all of which appear to have as common origin, a hypothetical base called by the author *chinizin*, to which he assigns the constitution: $C_9H_{10}N_2$.*

One of the derivatives of this hypothetical basis was described by the author some time ago under the name *methyl-oxy-chinizin*. This is formed by the condensation of equal numbers of molecules of ethyl diacetic acid, or ethyl aceto-acetate and phenylhydrazin:

$$\underset{\text{phenyl-hydrazin}}{C_6H_5N_2H_3} + \underset{\text{ethyl diacetic acid}}{C_8H_{12}O_3} = \underset{\text{methyl-oxy-chinizin.}}{C_{10}H_{10}N_2O} + \underset{\text{water}}{H_2O} + \underset{\text{alcohol}}{C_2H_5OH}$$

(Phenylhydrazin $C_6H_8O_3$ is prepared as follows: 20 parts of anilin are dissolved in 50 parts of hydrochloric acid (1.190) and 80 parts of water, and to the cold solution is added enough nitrite of sodium, dissolved in twice its weight of water, and acidulated with hydrochloric acid, until the anilin is converted into diazobenzolchloride. The solution is poured into an ice-cold saturated solution of sodium sulphite (2 mol. of Na_2SO_3 for 1 mol. anilin), and as soon as a sample of the separated crystals dissolves in the supernatant liquid, on warming, without elimination of gas, the whole is cautiously warmed on the water-bath, so as to redissolve most of the separated salt. It is now carefully neutralized with hydrochloric acid. Next it is acidulated with acetic acid and mixed with zinc-dust until the liquid has become colorless. The liquid is filtered, heated to boiling, mixed with about ⅓ of fuming hydrochloric acid, and the separated hydrochlorate of phenylhydrazin decomposed with solution of soda. Most of the hydrazin is thereby separated as an oil, the remainder is shaken out with ether. The crude hydrazin is dehydrated over carbonate of potassium and then rectified. It then formed a faintly aromatic oil of spec. gr. 1.091 at 21° C., very resisting towards reducing agents, but very easily destroyed by oxidizing agents.)

(Ethyl diacetic acid is prepared as follows: 100 parts of metallic sodium in small pieces are added to 1,000 parts of *pure* acetic ether which has repeatedly been distilled over sodium. As soon as the mixture ceases to become warm, it is gently warmed for two or two and a half hours on the water-bath (under an upright condenser), until the sodium is all dissolved. To the still warm liquid, 550 parts of 50% acetic acid, and after cooling, 500 parts of water are added, the whole is shaken and the upper layer which has separated removed. This is washed with a little water and distilled, first on the water-bath, and then over an open flame. The several portions between 100°–130°, 130°–165°, 165°–175°, 175°–185°, 185°–200° are caught separately and the fractional distillation repeated three times, so as to separate all portions boiling between 175° and 185° of which only about 175 parts are obtained.)

According to Dr. Knorr's investigations, methyl-oxy-chinizin may be regarded as derived from the hypothetical base *chinizin* (see foot-note) by the substitution of methyl for the hydrogen distinguished by the letter *a*, and of oxygen for the two hydrogens marked *b*.

This substance has both acid and basic properties. If the inside-group NH is replaced by an alcohol-radical, the acid properties disappear.

All these bodies have antipyretic properties.

On heating methyl-oxy-chinizin with an excess of phenylhydrazin to 170° C. or better still to boiling, two molecules of it unite with elimination of two atoms of hydrogen, and form *dimethyl-oxy-chinizin* to which the plainer name *antipyrin* has been given:

$$\underset{}{2C_{10}H_{10}N_2O} = \underset{\text{antipyrin}}{C_{23}H_{18}N_4O_2} + \underset{\text{hydrogen.}}{H_2}$$

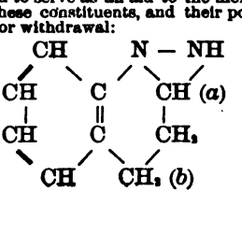
This substance has the properties of the simple methyl-oxy-chinizin, but differs in its behavior towards *nitrous acid*, which immediately eliminates two atoms of hydrogen and converts it into a *blue* coloring matter, which, by reducing agents, may be again converted into dimethyl-oxy-chinizin.

Dr. Knorr was led by several considerations to cause this body to be examined as to its antipyretic effects. The results of these have already been communicated in a previous number of this journal.

It may be added here, that antipyrin has been used with the most satisfactory results in Bellevue Hospital, for the purpose of reducing febrile temperature. It is a pity that the supply does not seem quite regular as yet, since there is occasionally not a grain to be obtained anywhere. The substance is certain to have a great future unless a still more active and palatable compound should be discovered.

Dr. Knorr himself states (in his paper, *Berichte d. Deutsch. Chem. Ges.*, 1884, p. 2,038) that antipyrin is useless in malaria.

*The author gives the following diagram to indicate the constitution of the substance. This diagram will be found to have analogy to the assumed constitution of naphthalin, which is regarded as a coalition of two benzol-nuclei having two carbon atoms in common It should not be forgotten that these diagrams do not pretend to explain or to picture the actual position of the constituents in the molecule. They only mean to indicate the relationship of the constituents to each other. and to serve as an aid to the memory in regard to these constituents, and their possible substitution or withdrawal:



BIBLIOGRAPHY.

LECTURES ON THE PRINCIPLES AND PRACTICE OF MEDICINE. By NATHAN SMITH DAVIS, A.M., M.D., LL.D., Professor of Principles and Practice of Medicine and Clinical Medicine in the Chicago Medical College. Chicago: Jansen, McClurg & Co., 1884, pp. 896, 8vo. Cloth, $5.00; sheep, $6.00.

THE notable feature of this work, as compared with other American textbooks, is the employment of the metric system of weights and measures (the quantities, as they are commonly expressed, being added in parenthesis), and the clinical character of the method employed in treating the subjects.

We find in the text many practical matters which are very commonly ignored in the treatises of this class, but which are of great importance in the management of patients and their diseases.

The work quite justifies the reputation so long borne by its author for practical wisdom and skill as a teacher.

MEDICAL RHYMES. Selected and compiled from a variety of sources by HUGO ERICHSEN, M.D., with an Introduction by WILLIS P. KING, M.D. Illustrated. St. Louis: J. H. Chambers & Co., pp. 220, 8vo.

THIS is a charming collection of poems upon topics of interest to medical readers, and embraces many of the enjoyable things which have appeared of late years in medical and secular prints. The selection and arrangement have been made with unusual taste. Numerous and well-made illustrations add to the interest of the text, and the printer's work has been done with care.

We feel a personal obligation to the compiler for his labors, and are sure that our readers who can appreciate the value of an interesting collection of short sketches which may serve for their own amusement or to lessen the tedium of their waiting-room for their patients, will find this well worth its cost.

PERIODIKON TES EN ATHENAIS PHARMAKEUTIKES HETAIRIAS. [Journal of the Pharmaceutical Society of Athens.] First year. July, etc. 8vo, Athens.

THIS new journal, published monthly for the Society by P. Angelopoulos, D. Varouchas, K. P. Vratimos, and G. Kantzike, promises to be of considerable interest, and to awaken a spirit of progress among the pharmacists in Greece.

NATRIUMHYPOBROMIT ALS REAGENS zur qualitativen und quantitativen Bestimmung des Ammoniakharzes. Von P. C. PLUGGE. (Reprint from *Arch. d. Pharm.*, 21 (No. 11), 1883. From the author.)

UEBER DAS SUBERIN. Ein Beitrag zur botanischen, pharmakognostischen und chemischen Kenntniss des Korkes von Quercus Suber.—Inaug. Dissert. von KARL KUEGLER. (Reprint from *Arch. d. Pharm.* From the author.)

CALENDAR of the University of Michigan. For 1883–1884. 8vo. Ann Arbor. (From Prof. A. B. Prescott.)

"*Life's*" suggestion as to one way in which the pedestal can be paid for.

Clerk.—What do you wish, little girl?

L. G.—I want to know how much your best pills are. Your *best pills.*—*Life.*

The Netherlands Pharmacopœia.—A commission has been appointed by the Government of the Netherlands for the revision of the pharmacopœia.

NEW BOOKS.

Beilstein (Dr. F.). Handbuch der Organischen Chemie. 2te Auflage, 8vo, Leipzig. (In three vols. Published in numbers each at *Mark* 1.80.)

[This work, the first edition of which was exhausted soon after its appearance, is one of the *most indispensable books of reference* that we know of. Its aim is to give an account of *every* organic compound so far analyzed, with complete statement of the literature referring to it, preparation, properties, derivatives, relation to other substances. We believe to do a service to many our readers, who have occasion to inform themselves in subjects regarding organic chemistry, by advising them to subscribe for this work.]

Corbelli (P.). Il giardiniero medico manuale, etc. [Cultivation, etc., of medicinal garden-plants.] 16mo, Milane. 4 lire.

Delteil (A.). La vanilla, sa culture et sa preparation. 3d ed., av. 2 planch. 8vo, Bar-le-Duc, 1884.

Elsner (F.). Mikroskopischer Atlas. III. Gewürznelken, Vanille, Piment, Spanischer Pfeffer, Muskatnuss und Macis. 4to, Halle a. S. *m.* 2.40.

Forster (C. F.). Handbuch der Cacteenkunde. 2te Aufl. von Th. Rümpler. 8vo, Leipzig. (In numbers, each 2 m.)

Godeffroy (R.). Compendium der Pharmacie. 2te Aufl., 8vo, Wien (appears in numbers, each at *m.* 0.90).

Growe (W. B.). A Synopsis of the Bacteria and Yeast Fungi and allied Species (Schizomycetes and Saccharomycetes). With 87 ill. 8vo, London. 3*s.* 6*d.*

Hager (Herm.). Erster Unterricht des Pharmaceuten. I. Chemisch-pharmac. Unterricht. 4te Aufl., 8vo, Berlin.

Kollerman (W. A.). Plant-analysis. A classified list of the wild flowers of the Northern U. S.

Le Sueur (Ch.). Le Miasmifuge, ou fin de la phtisie: appareil de preservation organique et vitale. I., 4to, Paris, 1884.

Manton (W. P.). Beginnings with the Microscope. (Ill.) 18mo, Boston.

Oehme (Julius). Die Fabrikation der wichtigsten Antimon-Preparate, bes. des Brechweinsteins und Goldschwefels. Ill. 8vo, Wien (Hartleben), 1884.

Rivolta (S.). Dei parasiti vegetali. 2d ed., pp. 592. Torino, 1884. 9 lire.

Tichborne (C. R. C.) and Prosser James. The mineral Waters of Europe, including a short description of artificial waters. 8vo, London.

Vomácka (A.). Handbuch der Receptur. 8vo, Wien, 1883. *m.* 3.60.

Zapp's Anweisung zur Prüfung und Aufbewahrung der Arzneimittel. 4te Aufl. v. W. v. Gartzen. 8vo, Köln, 1883. *m.* 2.40.

PHARMACEUTICAL CALENDAR.—DECEMBER.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Tues. 2d.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.	Thurs. 11th.	Newark (N. J.) Pharm. Assoc.
	Rhode Island Chem. and Drug Clerks' Assoc.		Philadelphia Coll. Pharm.—Alumni Pharm. M.
	St. Joseph (Mo.) Pharm. Assoc.		New York Germ. Apoth. Soc.
	New York State Board of Pharm.—Albany.		Lancaster Co. (Pa.) Pharm. Assoc.
Wed. 3d.	Rhode Island State Pharm. Association.	Tues. 16th.	St. Louis (Mo.) Coll. Pharm.—Trustees' & Alumni Meeting.
Thurs. 4th.	Louisville (Ky.) Coll. Pharm.—Pharm. Meet.		Philadelphia Coll. Pharm.—Pharm. Meet.
	Philadelphia Coll. Pharm.—Alumni Soc. M.		St. Joseph (Mo.) Pharm. Assoc.
Friday 5th.	Amer. Chem. Soc.—University Building, N. Y.	Friday 19th.	Rhode Island Chem. and Drug Clerks' Assoc.
Mon. 8th.	New York City Board of Pharm., 209 E. 23d street, at 3 P.M.—Examination.	Tues. 23d.	Boston (Mass.) Druggists' Assoc.
Tues. 9th.	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.	Thurs. 25th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.
Wed. 10th.	Cincinnati Coll. Pharm.	Mon. 29th.	Philadelphia Coll. Pharm.—Stated Meeting.

INDEX.

References to illustrated articles are in italics.

Corrections, 31.

* See also advertisement pages.

2 gal
+
256